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North Central Research Station

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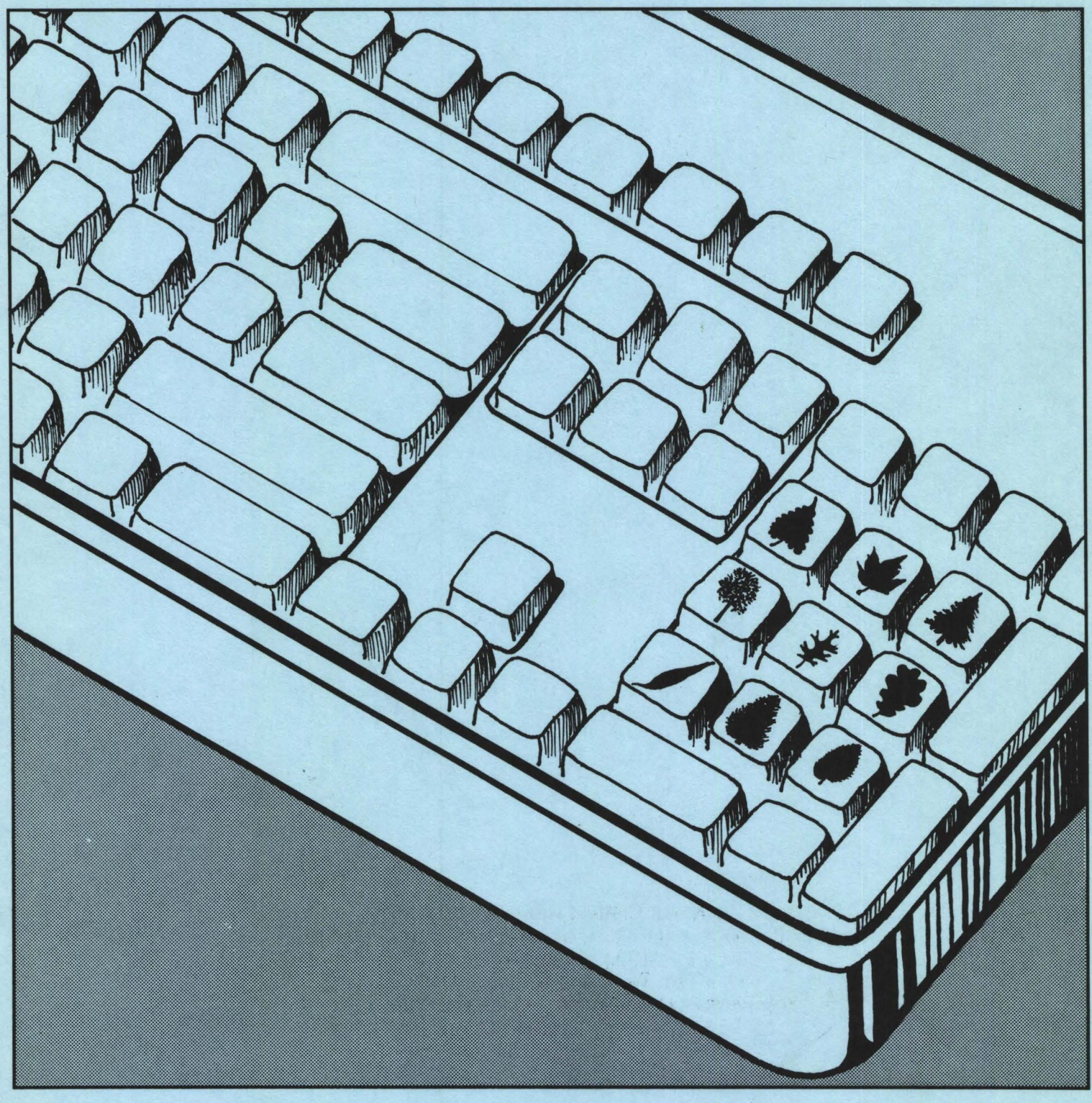
The Forest Inventory and Analysis Database: Database Description and Users Manual Version 1.0

Patrick D. Miles, Gary J. Brand, Carol L. Alerich, Larry F. Bednar, Sharon W. Woudenberg, Joseph F. Glover, and Edward N. Ezzell



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FOREWORD

Forest Inventory and Analysis (FIA) is a continuing endeavor mandated by Congress in the Forest and Rangeland Renewable Resources Planning Act of 1974 and the McSweeney-McNary Forest Research Act of 1928. FIA's primary objective is to determine the extent, condition, volume, growth, and depletions of timber on the Nation's forest land. Before 1999, all inventories were conducted on a periodic basis. With the passage of the 1998 Farm Bill, FIA is required to collect data on 20 percent of the plots annually within each State. This kind of up-to-date information is essential to frame realistic forest policies and programs. USDA Forest Service regional research stations are responsible for conducting these inventories and publishing summary reports for individual States.

In addition to published reports, the Forest Service can also provide portions of the data collected in each inventory to those interested in further analysis. This report describes a standard format in which data can be obtained. This standard format, referred to as the Forest Inventory and Analysis Database (FIADB) structure, was developed to provide users with as much data as possible in a consistent manner among States. FIADB files can be obtained for any State inventory conducted after 1988 (Eastern U.S.) or 1994 (Western U.S.). Files for many State inventories conducted before this time may also be available; however, some data fields may be empty or the items may have been collected or computed differently. Inventories begun after 1997 use a common plot design nationwide, resulting in greater consistency among FIA units than earlier inventories. Data field definitions note inconsistencies caused by different sampling designs.

ACKNOWLEDGMENTS

The material in this manual is based on previous efforts to provide a uniform database for multiple FIA units (Hansen *et al.* 1992, Woudenberg and Farrenkopf 1995). We also thank Stan Arner, Tom Frieswyk, Mark Hansen, Bruce Hiserote, Brian Johnston, Neil McKay, Roy Mita, Larry Royer, Mark Rubey, and Shirley Waters for their valuable assistance.

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THE FIA DATABASE

This manual describes a database that has a uniform data structure for FIA inventories nationwide. Its creation is part of an ongoing effort by FIA to produce consistent inventory data and summaries nationwide. Specifically, the intent is to provide data to:

1) Produce standard FIA tables of timber resource statistics (see Appendix B),
2) Meet Resource Planning Act Assessment data requirements,
3) Provide users with a common source for integrated FIA plot and tree data, and
4) Estimate changes in forest land area and timber volume between successive FIA inventories.

The FIA Database (FIADB) replaces two FIA regional databases, one for the Eastern States (Eastwide database) and the other for the Western States (Westwide database), which are documented in separate manuals (Hansen *et al.* 1992, Woudenberg and Farrenkopf 1995). A new national plot design provided the impetus for replacing these two databases. FIA units adopted this design in all State inventories initiated after 1997. An overview of the design is presented in Chapter 2.

Although specifically intended to store data collected with the new design, the FIADB also stores data from FIA inventories completed before the adoption of the national plot design. These older inventories are always included in the database if they are the most recently completed inventory in a State. Optionally, FIA units may include data from other older inventories. The level of data consistency among these older inventories varies depending on when, where, and how the data were collected and compiled. Generally, notes are provided in Chapter 3 indicating when a data element differs among FIA units or between successive inventories. We have also noted when differences occur between these older inventories and those conducted using the new national plot design. We recommend that users contact the FIA unit that produced any of these older inventories for additional details.

The database contains extensive data on forest area attributes and on the status of live and standing dead trees. However, it does not include all data collected and compiled by FIA units. In particular, data on dead and down trees, understory (non-tree) vegetation, and many abiotic attributes are not included. Users should contact individual FIA units to see if these data are available.

Users needing estimates of change in seedling density, forest land area, or timberland volume should note the following cautions. Tree lists contained in this database may be significantly truncated on plots that sample very young stands predominantly stocked with seedlings (trees less than 1 inch at the point of diameter measure). Seedlings often are tallied in FIA inventories only to the extent necessary to determine if some minimum number of them are present, which means that seedlings are often underreported. The database is not designed to provide valid estimates of change in forest land area between successive inventories that predate the new national plot design. Computations of various components of volume change should carefully mimic the examples given in Chapter 4.

Data for individual States are available through the Internet at: http://www.fs.fed.us. This is the Internet address for the Forest Service's National Headquarters and should remain unchanged for the immediate future. From this page, users should follow the links to "Programs & Staffs," "Research & Development," "Headquarters R&D Staffs," "Forest Inventory and Analysis," and finally "Online databases." Users accessing the FIA Web site can either download the data as comma-delimited files in FIADB format or use a Web-based program to generate their own customized reports.

Chapter 2 describes FIA sampling and estimation procedures and Chapter 3 provides detailed documentation of the database. Chapter 4 presents algorithms on how to compute estimates of area; current timber volume; biomass; number of trees; and annual timber volume growth, mortality, and removals.

FIA SAMPLING AND ESTIMATION PROCEDURES

To understand the types of data available, FIADB users need a basic understanding of FIA sampling and estimation procedures. A general discussion of these sampling procedures follows. Before the new common sampling design, specific sampling methods varied among FIA units and even among States within an FIA unit. Users who require additional information about sampling procedures for a specific State should contact the group responsible for that State's inventory. As new inventories are completed, the common sampling design being implemented will produce greater consistency in the compiled data.

Remote Sensing

Each State inventory begins with the interpretation of a remotely sensed sample that classifies the land by various remote sensing classes. The total area of a sample comes from outside sources (usually Bureau of Census reports). The remote sensing classifications are based on land use (such as pasture, cropland, urban). For forested land, more detailed classes are sometimes defined based on criteria such as forest type, volume per acre, stand size, stand density, ownership, and/or stand age. Then, ground plots are measured to adjust the remote sensing sample for changes since its acquisition date and to correct any misclassification. Ground plots also provide estimates that cannot be made from a remotely sensed sample. The remote sensing classification of these ground plots, together with the area estimates from the remote sensing sample, is used to assign area expansion factors to all ground plots. These area expansion factors are used to weigh plot-level estimates when computing estimates for selected strata of the population. Selection criteria for remote sensing classes and computation of area expansion factors differ from State to State. Users interested in the details of how these expansion factors were assigned to the ground plots for a particular State should contact the appropriate FIA unit.

Ground Sampling

FIA plots are designed to cover a 1-acre sample area; however, not all trees on the acre are measured. Recent inventories use a national standard, fixed-radius plot layout for sample tree selection. Various arrangements of fixed-radius and variable-radius (prism) subplots were used to select sample trees to measure in older inventories. Ground plots may be new plots that have never been measured, or remeasurement plots that were measured during a previous inventory. For all plots, several observations are recorded for each sample tree, including its diameter, species, and other measurements that enable the prediction of the tree's volume, growth rate, and quality. These tree measurements form the basis of the data on the tree records in the FIADB.

Some of the data items in the FIADB come directly from field measurements; others are computed from tree measurements. Net cubic-foot volume is a computed item. Each FIA unit uses a volume equation to compute this volume based on diameter, taken either at breast height (DBH) or root collar (DRC), and other tree and/or stand attributes. Although equations vary from State to State, they were all designed to estimate the same volume.

One important computed item is the tree expansion factor. This item expresses the number of trees per acre that each sampled tree represents in the current inventory. It is the inverse of the size of the plot the tree was sampled on. For example, if the plot design samples trees under 5 inches DBH on a single fixed-radius plot covering 1/100th acre, this item would have the value of 100 trees per acre for a tree less than 5 inches DBH. If trees 5 inches DBH and larger are sampled with ten 37.5 BAF (English) prism points, as was common with FIA plots in the Eastern U.S., the expansion factor would depend on the DBH of the tree. Under such a sample, a 14.0-inch tree

would have an expansion factor of 3.51 trees per acre, again the inverse of the plot size[1].

A national plot design was adopted in the mid-1990's. Now all FIA units have implemented a common sampling design consisting of four 24.0-foot radius subplots (approximately 1/24th acre) for trees at least 5 inches in diameter and four 6.8-foot radius microplots (approximately 1/300th acre) for smaller trees. Therefore, tree expansion factors are approximately 6 for trees at least 5 inches in diameter and approximately 75 for the smaller trees. Subplot 1 is the center of the cluster with the other three subplots located 120 feet away at azimuths of 360°, 120°, and 240°, respectively. Another characteristic of the new design is the mapping of differing forest conditions. Forest type, stand-size class, stand density, stand origin, owner group, and reserve status define a condition. If two or more conditions occur within a plot, the boundary between them is mapped and the proportion of the plot in each condition is recorded.

The items in the COND table are estimates of average attributes for the portion of the plot in that condition. Previous inventories did not map conditions. Instead, some attributes were assigned the value determined for the plot center, or subplots were shifted so that they fell within the same stand as the plot center.

Computed expansion factors are needed to estimate growth, mortality, and removals. Growth can be estimated by measuring the tree at two times, by measuring growth rings on an increment core, or by using a model. The method used, along with the sampling design, determines the value for the expansion factors needed to compute growth. Mortality can also be estimated from remeasured or new plots. With inventories that have remeasurement plots, mortality is based on trees that die during the remeasurement period. In cases where new plots provide estimates of mortality, mortality is estimated from either a mortality prediction equation that predicts the probability that a tree will die over some time period, or from a field estimate of mortality based on the measurement of dead trees and an estimate of when they died. Depending on the inventory design, removals may be estimated from observations of trees cut on either new or remeasured plots.

We have tried with the FIADB to provide as consistent data as possible from one State to another. Therefore, although differences in field and estimation procedures do exist among States, the data in the FIADB for different States are compatible. Differences that do exist are minor and should have little or no impact on most uses of these data. Consistency will increase as inventories incorporating the new common sampling design are completed.

Accuracy Standards

Forest inventory plans are designed to meet sampling error standards for area, volume, growth, and removals provided in the Forest Service Handbook (FSH 4809.11). These standards, along with other guidelines, are aimed at obtaining comprehensive and comparable information on timber resources for all parts of the country. FIA inventories are commonly designed to meet the specified sampling errors at the State level at the 67 percent confidence limit (one standard error). The Forest Service Handbook mandates that the sampling error for area cannot exceed 3 percent error per 1 million acres of timberland. Five percent (Eastern U.S.) or 10 percent (Western U.S.) error per 1 billion cubic feet of growing stock on timberland is applied to volume, removals, and net annual growth. Unlike the mandated sampling error for area, sampling errors for volume, removals, and growth are only targets.

FIA inventories are extensive inventories that provide reliable estimates for large sampling areas. As data are subdivided into smaller and smaller areas, such as a geographic unit or a county, the sampling errors increase and the reliability of the estimates goes down. For example, a State with 5 million acres of timberland would have a maximum allowable sampling error of 1.3 percent (3% x $(1{,}000{,}000)^{.5}$/ $(5{,}000{,}000)^{.5}$), a geographic unit within that State with 1 million acres of timberland would have a 3.0 percent maximum allowable sampling error (3% x $(1{,}000{,}000)^{.5}$ / $(1{,}000{,}000)^{.5}$), and a county within that State with 100 thousand acres would have a 9.5 percent maximum allowable sampling error (3% x $(1{,}000{,}000)^{.5}$/ $(100{,}000)^{.5}$) at the 67 percent confidence level.

[1] *The plot size of a 14.0-inch tree on a single 37.5 BAF (English) prism plot would be:*
$(14.0 \text{ inches}^2 \times \pi)/(37.5 \text{ ft}^2/\text{acre} \times 2^2 \times 12 \text{ inches}^2/1 \text{ ft}^2) = 0.0285$ *acres. The plot size of this tree on a 10 point cluster would be 10 times this or 0.285 acres, producing an expansion factor of 3.51.*

DATABASE STRUCTURE

The FIA Database is a relational database structured for the Oracle Database Management System. By the nature of the way FIA data are collected and compiled, these Oracle tables are hierarchical. This structure makes it easy to produce flat files for customers who do not have access to, or the capability of, database management on their computer system.

There are nine tables in the FIA Database (SURVEY, COUNTY, PLOT, SUBPLOT, COND (condition), TREE, SEEDLING, SITETREE, and BOUNDARY). The SURVEY table provides information on where and when inventories were conducted. The COUNTY table is merely a lookup table for the county and unit names. The other seven tables closely reflect the manner in which data are collected on a field plot. A row in the PLOT table provides information relevant to the entire 1-acre plot. A row in the SUBPLOT table describes the features of a single subplot. A row in the COND table provides information on the discrete combination of landscape attributes that define the condition (a condition will have the same land use, reserved status, ownership, forest type, stand-size class, stand origin, and stand density). A row in the TREE table is used to describe each tree over 1 inch in diameter found on a subplot. A row in the SEEDLING table provides a count of the number of trees of a species found on a subplot that are less than 1 inch in diameter but at least 6 inches in length for conifer species or at least 12 inches in length for hardwood species. A row in the SITETREE table provides information on one of the site trees collected to provide site index information for a condition. A row in the BOUNDARY table provides an approximate description of the demarcation line between two conditions that occur on a single subplot.

For each column or variable in a table, there is a section that describes the unabbreviated name and detailed description of the variable. Coded items also include a list of the codes and their meanings.

Users need to exercise caution when summarizing numeric variables with special values (usually a -1) assigned to designate missing values. For example, computing averages of elevation, site index, or total height without accounting for those entries coded as -1 will give erroneous results.

Survey Table (Oracle table name is SURVEY)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SURVEY	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	STATEAB	VARCHAR2 (2)	Name	
6.	STATENM	VARCHAR2 (28)	Name	
7.	INVYR	NUMBER (4)	Year (YYYY)	
8.	MODDATE	NUMBER (8)	Month-Day-Year (MMDDYYYY)	
9.	CENSUSYR	NUMBER (4)	Year (YYYY)	
10.	NFSYR	NUMBER (4)	Year (YYYY)	
11.	RSCD	NUMBER (2)	Coded	
12.	NUMPANEL	NUMBER (2)	Number	
13.	NOTES	VARCHAR2 (2000)	Character	

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. STATEAB — State abbreviation. The two-character State abbreviation (table 1).

6. STATENM — State name. State names are left justified.

7. INVYR — Inventory year. The calendar year that best represents when the inventory data were collected (e.g., 1994). FIA data are often collected over more than 1 year; however, a specific year is selected that best represents the inventory cycle's subcycle. FIA publications based on an inventory are said to be an analysis of the forest resource as of this date.

8. MODDATE — Date the data were last modified for this State, cycle, and subcycle. Initially this is the date when the data are first loaded into the database. If any modifications are made to any of the records (SURVEY, COUNTY, PLOT, SUBPLOT, COND (Condition), TREE, SEEDLING, SITETREE, OR BOUNDARY), MODDATE will be changed to the date the modification was made.

9. CENSUSYR — Census year. The year (e.g., 1980 or 1990) of the Bureau of the Census land area figures to which total State land area is reconciled.

10. NFSYR — National Forest System Area Control Year. The Forest Service produces an annual report entitled "Land Areas of the National Forest System." Forest Inventory area estimates of lands administered by the Forest Service are reconciled to match these reported numbers. NFSYR is the year of the report (-1 if not applicable).

11. RSCD — Region or Station code. Identification number of the Forest Service Region or Station that provided the inventory data.

Code	Region or Station and phone number
1	Region 1, Northern Region
2	Region 2, Rocky Mountain Region
3	Region 3, Southwestern Region
4	Region 4, Intermountain Region
5	Region 5, Pacific Southwest Region
6	Region 6, Pacific Northwest Region
8	Region 8, Southern Region

9	Region 9, Eastern Region
10	Region 10, Alaska Region
22	Rocky Mountain Research Station, (801) 625-5388
23	North Central Research Station, (651) 649-5139
24	Northeastern Research Station, (610) 557-4075
26	Pacific Northwest Research Station, (503) 808-2000
27	Alaska - Pacific Northwest Research Station, (907) 271-2585
33	Southern Research Station, (828) 257-4350

12. NUMPANEL — Number of panels. The number of years it will take to measure all of the plots on the base grid. Plots on the base grid are measured on a multiple-year cycle with the intention of measuring 1/n (where n is the number of years in the cycle) of the plots (called a *panel*) every year. The plots in any panel are chosen so they are uniformly distributed within the monitoring area.

13. NOTES — An optional item where notes about the inventory may be stored.

Table 1.—*Codes used for STATENM, STATEAB, and STATECD. Also listed is the Region or Station code (RSCD) of the FIA unit responsible for collecting data in that State.*

STATENM	STATEAB	STATECD	RSCD	STATENM	STATEAB	STATECD	RSCD
Alabama	AL	01	33	Minnesota	MN	27	23
Alaska-section 1	AK	102	27	Mississippi	MS	28	33
Alaska-section 2	AK	202	27	Missouri	MO	29	23
Alaska-section 3	AK	302	27	Montana	MT	30	22
Alaska-section 4	AK	402	27	Nebraska	NE	31	23
Alaska-section 5	AK	502	27	Nevada	NV	32	22
Alaska-section 6	AK	602	27	New Hampshire	NH	33	24
Alaska-section 7	AK	702	27	New Jersey	NJ	34	24
Alaska-section 8	AK	802	27	New Mexico	NM	35	22
Arizona	AZ	04	22	New York	NY	36	24
Arkansas	AR	05	33	North Carolina	NC	37	33
California	CA	06	26	North Dakota	ND	38	23
Colorado	CO	08	22	Ohio	OH	39	24
Connecticut	CT	09	24	Oklahoma	OK	40	33
Delaware	DE	10	24	Oregon	OR	41	26
Florida	FL	12	33	Pennsylvania	PA	42	24
Georgia	GA	13	33	Rhode Island	RI	44	24
Hawaii	HI	15	26	South Carolina	SC	45	33
Idaho	ID	16	22	South Dakota	SD	46	23
Illinois	IL	17	23	Tennessee	TN	47	33
Indiana	IN	18	23	Texas	TX	48	33
Iowa	IA	19	23	Utah	UT	49	22
Kansas	KS	20	23	Vermont	VT	50	24
Kentucky	KY	21	33	Virginia	VA	51	33
Louisiana	LA	22	33	Washington	WA	53	26
Maine	ME	23	24	West Virginia	WV	54	24
Maryland	MD	24	24	Wisconsin	WI	55	23
Massachusetts	MA	25	24	Wyoming	WY	56	22
Michigan	MI	26	23				

County Table (Oracle table name is COUNTY)

Column name	Oracle data type	Value or unit of measure	Key data item
1. TABLENM	VARCHAR2 (8)	COUNTY	
2. STATECD	NUMBER (4)	Coded	X
3. UNITCD	NUMBER (2)	Coded	X
4. COUNTYCD	NUMBER (3)	Coded	X
5. COUNTYNM	VARCHAR2 (28)	Name	
6. UNITNM	VARCHAR2 (28)	Name	

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

4. COUNTYCD — County code. The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

5. COUNTYNM — County name. County name as recorded by the Bureau of the Census, 1990, for individual counties, or the name given to a similar governmental unit by the FIA program. County names are left justified. Only the first 28 characters of the name are used. See Appendix C for names.

6. UNITNM — Unit name. A 28-character name given to each survey unit for descriptive purposes.

Plot Table (Oracle table name is PLOT)

	Column name	Oracle data type	Value or unit of measure	Key data item	Needed[1]
1.	TABLENM	VARCHAR2 (8)	PLOT		
2.	STATECD	NUMBER (4)	Coded	X	A
3.	CYCLE	NUMBER (2)	Number	X	A
4.	SUBCYCLE	NUMBER (2)	Number	X	A
5.	UNITCD	NUMBER (2)	Coded	X	A
6.	COUNTYCD	NUMBER (3)	Coded	X	A
7.	PLOT	NUMBER (5)	Number	X	A
8.	MEASYEAR	NUMBER (4)	Year (YYYY)		A
9.	MEASMON	NUMBER (2)	Month (MM)		A
10.	MEASDAY	NUMBER (2)	Day (DD)		A
11.	REMPER	NUMBER (3,1)	Years		A
12.	KINDCD	NUMBER (2)	Coded		A
13.	DESIGNCD	NUMBER (4)	Coded		A
14.	RDCD	NUMBER (2)	Coded		F
15.	RDDISTCD	NUMBER (2)	Coded		F
16.	RDUSECD	NUMBER (2)	Coded		F
17.	PUBUSECD	NUMBER (2)	Coded		F
18.	REUSECD1	NUMBER (2)	Coded		F
19.	REUSECD2	NUMBER (2)	Coded		F
20.	REUSECD3	NUMBER (2)	Coded		F
21.	WATERCD	NUMBER (2)	Coded		F
22.	LAT	NUMBER (6,2)	Decimal degree		A
23.	LON	NUMBER (6,2)	Decimal degree		A
24.	ELEV	NUMBER (5)	Feet		F
25.	EXPCURR	NUMBER (7)	Acres		A
26.	EXPVOL	NUMBER (7)	Acres		A
27.	EXPGROW	NUMBER (7)	Acres		A
28.	GROWCD	NUMBER (2)	Coded		A
29.	EXPMORT	NUMBER (7)	Acres		A
30.	MORTCD	NUMBER (2)	Coded		A
31.	EXPREMV	NUMBER (7)	Acres		A
32.	EXPCHNG	NUMBER (7)	Acres		A
33.	P2PANEL	NUMBER (2)	Number		A
34.	P3PANEL	NUMBER (2)	Number		A
35.	ECOSUBCD	VARCHAR2 (6)	Name		A
36.	CONGCD	NUMBER (4)	Number		A
37.	MANUAL	NUMBER (3,1)	Number		A

[1]*A = all plots*
F = all forested plots (LANDCLCD = 1)

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. MEASYEAR — Measurement year. The year in which the plot was actually measured. This year may differ from INVYR in the SURVEY table.

9. MEASMON — Measurement month. The month in which the plot was actually measured.

Code	Month
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

10. MEASDAY — Measurement day. The day of the month in which the plot was actually measured.

11. REMPER — Remeasurement period code. The number of years between measurements of remeasured plots. This item is coded -1 for new plots. Remeasurement period is based on the number of growing seasons between measurements. Allocation of parts of the growing season by month is different for each FIA program. Contact the FIA program for information on how this is done for a particular State. NOTE: It is **not** valid to use REMPER to estimate periodic change.

12. KINDCD — Plot kind code. Indicates whether the plot is being measured for the first time, had been measured in a previous cycle and is being remeasured, had been remeasured previously but could not be relocated and this is the replacement, or had been measured in a previous cycle and data for this cycle are updated (estimated) with a model.

Code	Plot kind
1	New
2	Remeasured
3	Replacement
4	Modeled

13. DESIGNCD — Plot design code. Indicates the type of plot design used to collect the data. Contact appropriate FIA program for specific code definitions.

Code	Plot design
1	National FIA mapped plot design consisting of four fixed-radius subplots
100-199	Northeastern Station (NE)
200-299	Southern Station (SRS)
300-399	North Central Station (NC)
400-499	Rocky Mountain Station (RM)
500-599	Pacific Northwest Station (PNW)
600-699	Alaska

14. RDCD — Trail or road code. The type of trail or road that is closest to the plot and within 1 mile of plot center. If two or more roads are the same distance away, the higher quality one is recorded. New in 1999.

Code	Type of trail or road
0	None within 1 mile
1	Paved road or highway
2	Improved gravel road
3	Improved dirt road
4	Unimproved dirt or four-wheel drive road
5	Human access trail primarily for recreational use
-1	Unavailable

15. RDDISTCD — Code for distance to improved road. The distance from plot center to the nearest improved road (trails or roads codes 1, 2, or 3) that is maintained. New in 1999.

Code	Horizontal distance
1	100 ft or less
2	101 ft to 300 ft
3	301 ft to 500 ft
4	501 ft to 1,000 ft
5	1,001 ft to 1/2 mile
6	1/2 to 1 mile
7	1 to 3 miles
8	3 to 5 miles
9	Greater than 5 miles
-1	Unavailable

16. RDUSECD — Road use restrictions code. The kind of access restrictions placed on roads used to travel to the plot starting point. New in 1999.

Code	Road use restrictions
0	None
1	Locked gate or cable across road
2	Road blocked by human obstruction, not gate or cable (e.g., mound)
3	Road blocked by natural occurrences (trees blown onto road, road or bridge washed out)
4	Posted no motorized vehicle
9	Other
-1	Unavailable

17. PUBUSECD — Public use restriction code. Restrictions posted near or on the plot that limits use of the area containing the plot. New in 1999.

Code	Public use restrictions
0	None
1	Keep out / no trespassing
2	No hunting or fishing
3	No dumping
9	Other
-1	Unavailable

18. REUSECD1 — Recreation use code 1. Primary recreation use within the accessible forest land portion of any of the four subplots, based on evidence such as campfire rings, compacted areas (from tents), hiking trails, bullet or shotgun casings, and tree stands. Recreational use that has had the most significant impact on the plot area is recorded. For example, in general, numerous four-wheel drive or ATV trails would be coded before camping, camping before hiking, and hiking before fishing. The coding system provided is in order of significance. Physical recreation evidence must be present to code 1-9. Dumping of trash is ignored when no evidence of recreation is present. New in 1999.

Code	Recreation Use
0	None
1	Motor vehicle (ATV, jeep, snowmobile)
2	Horse riding, dog team, or ski trails
3	Camping
4	Hiking
5	Hunting/shooting
6	Fishing
7	Boating (launch sites or docks)
9	Other
-1	Unavailable

19. REUSECD2 — Recreation use code 2. The second most significant recreational use. Same codes as REUSECD1 are used.

20. REUSECD3 — Recreation use code 3. The third most significant recreational use. Same codes as REUSECD1 are used.

21. WATERCD — Water on plot code. Water body less than 1 acre in size or a stream less than 30 feet wide that has the greatest impact on the area within the forest land portion of the four subplots. The coding hierarchy is listed in order from large permanent water to temporary water. New in 1999.

Code	Water on Plot
0	None (no water within any annular plot)
1	Permanent streams or ponds too small to qualify as noncensus water
2	Permanent water (too small to qualify as noncensus water) in the form of deep swamps, bogs, marshes without standing trees present or with standing trees and less than 1 acre
3	Ditch/canal—humanmade channels used as a means of moving water, e.g., for irrigation or drainage, which are too small to qualify as noncensus water
4	Temporary streams
5	Flood zones—evidence of flooding when bodies of water exceed their natural banks
9	Other temporary water
-1	Unavailable

22. LAT — Latitude North American Datum of 1983 (NAD 83 datum). The approximate latitude of the plot in decimal degrees to the nearest 100 seconds (0.028 degrees). The precision of this item along the meridian is ±1,542 m at latitude 45 degrees north. A value of -1 means that latitude was not recorded. However, in some cases the county centroid may be entered when the actual location is not available. Actual plot locations cannot be released.

23. LON — Longitude NAD 83 datum. The approximate longitude of the plot in decimal degrees to the nearest 100 seconds (0.028 degrees). The precision of this item along the parallel is ±1,094 m at latitude 45 degrees. A value of -1 means that longitude was not recorded. However, in some cases the county centroid may be entered when the actual location is not available.

24. ELEV — Elevation. The distance the plot is located above sea level, recorded in feet (NAD 83 datum). A value of -1 means that elevation was not recorded. Other negative values indicate distance below sea level.

25. EXPCURR — Current expansion factor. The number of acres the sample plot represents for making current estimates of area. The sum of EXPCURR over all plot-level records for a particular State is the total land and water area of the State. The number of acres a condition represents can be determined by multiplying EXPCURR times CONDPROP (in the COND table). See Chapter 4 for calculation algorithms.

26. EXPVOL — Volume expansion factor. The number of acres the sample plot represents for making current estimates of volume, biomass, and number of trees. Growing-stock volume will be "expanded" over the appropriate acreage by multiplying EXPVOL times the product

of VOLCFNET (in the TREE table) and the trees per acre item (TPACURR in the TREE table). See Chapter 4 for calculation algorithms.

27. EXPGROW — Growth expansion factor. The number of acres the sample plot represents for estimating growth. Growth will be "expanded" over the appropriate acreage by multiplying EXPGROW times the product of the growth item (GROWCFGS, GROWBFSL, or GROWCFAL in the TREE table) and the growth trees per acre item (TPAGROW in the TREE table). Total growth in a State is calculated by summing these expanded estimates from all trees on all plots in a particular State in the FIADB. Some plots may have a value of zero in this field. For example, in a State where both remeasured and new plots exist for a cycle, growth estimates might only be based on remeasurement plots. Therefore, new plots would have a value of zero in EXPGROW. See Chapter 4 for calculation algorithms.

28. GROWCD — Code for type of annual volume growth. Indicates how volume growth is estimated. Current annual growth is an estimate of the change in volume that occurred in a 1-year period ending when the plot was measured. Periodic annual growth is an estimate of the average annual change in volume occurring between two measurements, usually the current cycle and previous cycle.

Code	Type of annual volume growth
1	Current annual
2	Periodic annual
-1	Plot does not contribute to growth estimates

29. EXPMORT — Mortality expansion factor. The number of acres the sample plot represents for estimating mortality. Mortality will be "expanded" over the appropriate acreage by multiplying EXPMORT times the product of the mortality item (MORTCFGS, MORTBFSL, or MORTCFAL in the TREE table) and the mortality trees per acre item (TPAMORT in the TREE table). Total mortality in a State is calculated by summing these expanded estimates from all trees on all plots in a particular State in the FIADB. Some plots may have a value of zero in this field. For example, in a State where both remeasured and new plots exist for a cycle, mortality estimates might only be based on remeasurement plots. Therefore, new plots would have a value of zero in EXPMORT. See Chapter 4 for calculation algorithms.

30. MORTCD — Code for type of annual mortality volume. Indicates how mortality volume is estimated. Current annual mortality is an estimate of the volume of trees dying during a 1-year period ending when the plot was measured. Periodic annual mortality is an estimate of the average annual volume of trees dying between two measurements, usually the current cycle and previous cycle.

Code	Type of annual mortality volume
1	Current annual
2	Periodic annual
-1	Plot does not contribute to mortality estimates

31. EXPREMV — Removals expansion factor. The number of acres the sample plot represents for estimating removals. Removals will be "expanded" over the appropriate acreage by multiplying EXPREMV times the product of the removal item (REMVCFGS, REMVBFSL, or REMVCFAL in the TREE table) and the removal trees per acre item (TPAREMV in the TREE table). In inventories where removals are only estimated on remeasurement plots, EXPREMV=0 for new or temporary plots. See Chapter 4 for calculation algorithms.

32. EXPCHNG — Periodic change expansion factor. The number of acres that the sample plot represents for estimating periodic area change.

33. P2PANEL — Phase 2 panel number. Forest Inventory and Analysis panel number. This is recorded for inventories begun after 1998. For most inventories begun before 1999, the value of P2PANEL is set to -1. Plots on the base grid are measured on a multiple-year cycle with the intention of measuring 1/n (where n is the number of years in the cycle) of the plots (called a *panel*) every year. The plots in any panel are chosen so they are uniformly distributed within the monitoring area.

34. P3PANEL — Phase 3 panel number. Forest Health Monitoring panel number. Forest Health Monitoring was designed to monitor, assess, and report on long-term status, changes, and trends in forest ecosystem health on a regional and national basis. Before 1999, FHM and FIA were distinct programs and the plots were not necessarily co-located. FIA and FHM field plots are co-located for inventories begun after 1998. The FHM suite of data is now collected on a subset of FIA plots and are referred to as phase 3 data. Phase 3 data are collected on a 5-year cycle with one-fifth of the plots (called a panel) measured every year. The phase 3 plots in any panel are chosen so they are uniformly distributed within the monitoring area. The value for P3PANEL ranges from 0 to 5 for those plots where phase 3 data were collected. The value of P3PANEL for all other plots is -1.

35. ECOSUBCD — Ecological subsection code. An area of similar surficial geology, lithology, geomorphic process, soil groups, subregional climate, and potential natural communities. Subsection boundaries usually correspond with discrete changes in geomorphology. Subsection information is used for broad planning and assessment. Subsection codes may consist of up to six characters and were developed by the Forest Service as part of the National Hierarchical Framework of Ecological Units.

36. CONGCD — Congressional District code. A territorial division of a State from which a member of the U.S. House of Representatives is elected. There are 435 congressional districts in the United States apportioned to the States based on population; each State receives at least one congressional district. The Congressional

District code assigned to a plot (regardless of when it was measured) is for the most recent Congress. CONGCD is a four-digit number. The first two digits are the State FIPS code and the last two digits are the congressional district number. If a State has only one congressional district, the congressional district number is 00.

37. MANUAL — Field manual version. Version of the National Field Manual used to describe procedures for collecting data on the plot. New in 1999.

Subplot Table (Oracle table name is SUBPLOT)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SUBPLOT	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	SUBPCOND	NUMBER (1)	Number	
10.	MICRCOND	NUMBER (1)	Number	
11.	SLOPE	NUMBER (3)	Percent	
12.	ASPECT	NUMBER (3)	Degrees	
13.	WATERDEP	NUMBER (2,1)	Feet	

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP — Subplot number. Number of the subplot.

9. SUBPCOND — Subplot center condition. Condition number for the condition at the center of the subplot.

10. MICRCOND — Microplot center condition. Condition number for the condition at the center of the microplot.

11. SLOPE — Subplot slope. Average percent slope of the subplot. Valid values are 0 through 200. When slope is not recorded, this field contains -1.

12. ASPECT — Subplot aspect. The direction of drainage for most of the subplot, in degrees from magnetic north. North is recorded as 360. When slope <5, there is no aspect and this item is set to zero. For subplots without a recorded aspect, this field contains -1.

13. WATERDEP — Water or snow depth. The approximate depth (in feet) of water or snow covering the subplot when data were collected (-1 if not collected). New in 1999.

Condition Table (Oracle table name is COND)

	Column name	Oracle data type	Value or unit of measure	Key data item	Recorded on[1]	
					Mapped design	Other designs
1.	TABLENM	VARCHAR2 (8)	COND			
2.	STATECD	NUMBER (4)	Coded	X	A	A
3.	CYCLE	NUMBER (2)	Number	X	A	A
4.	SUBCYCLE	NUMBER (2)	Number	X	A	A
5.	UNITCD	NUMBER (2)	Coded	X	A	A
6.	COUNTYCD	NUMBER (3)	Coded	X	A	A
7.	PLOT	NUMBER (5)	Number	X	A	A
8.	CONDID	NUMBER (1)	Number	X	A	A
9.	CONDPROP	NUMBER (5,4)	Number		A	A
10.	LANDCLCD	NUMBER (1)	Coded		A	A
11.	RESERVCD	NUMBER (2)	Coded		F	F
12.	OWNCD	NUMBER (2)	Coded		F	F
13.	OWNGRPCD	NUMBER (2)	Coded		F	F
14.	FORINDCD	NUMBER (2)	Coded		F	F
15.	ADFORCD	NUMBER (4)	Coded		A	A
16.	FORTYPCD	NUMBER (3)	Coded		F	F
17.	FLDTYPCD	NUMBER (3)	Coded		F	F
18.	MAPDEN	NUMBER (1)	Coded		F	
19.	STDAGE	NUMBER (4)	Years		F	O
20.	STDSZCD	NUMBER (2)	Coded		F	T
21.	FLDSZCD	NUMBER (2)	Coded		F	T
22.	SITECLCD	NUMBER (2)	Coded		F	F
23.	SICOND	NUMBER (3)	Feet		F	O
24.	SIBASE	NUMBER (3)	Years		F	O
25.	SISP	NUMBER (3)	Coded		F	O
26.	STDORGCD	NUMBER (2)	Coded		F	O
27.	STDORGSP	NUMBER (3)	Coded		F	
28.	SLOPE	NUMBER (3)	Percent		F	F
29.	ASPECT	NUMBER (3)	Degrees		F	F
30.	PHYSCLCD	NUMBER (2)	Coded		F	
31.	GSSTKCD	NUMBER (2)	Coded		F	T
32.	ALSTKCD	NUMBER (2)	Coded		F	O
33.	TRTOPCD	NUMBER (2)	Coded		N	N
34.	DSTRBCD1	NUMBER (2)	Coded		F	
35.	DSTRBYR1	NUMBER (4)	Year		F	
36.	DSTRBCD2	NUMBER (2)	Coded		F	
37.	DSTRBYR2	NUMBER (4)	Year		F	
38.	DSTRBCD3	NUMBER (2)	Coded		F	
39.	DSTRBYR3	NUMBER (4)	Year		F	
40.	TRTCD1	NUMBER (2)	Coded		F	
41.	TRTYR1	NUMBER (4)	Year		F	
42.	TRTCD2	NUMBER (2)	Coded		F	
43.	TRTYR2	NUMBER (4)	Year		F	
44.	TRTCD3	NUMBER (2)	Coded		F	
45.	TRTYR3	NUMBER (4)	Year		F	
46.	PASTNFCD	NUMBER (2)	Coded		F	
47.	PRESNFCD	NUMBER (2)	Coded		NF	
48.	NFYEAR	NUMBER (4)	Year		NF	

[1] A = all conditions; F = all forested conditions (LANDCLCD = 1); T = all timberland conditions (LANDCLCD = 1, SITECLCD <7); N = nonindustrial private timberland RPA requirement, optional on all other timberland conditions; O = optional on forested conditions, not collected on nonforest conditions; NF = nonforest conditions.

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. CONDID — Condition number. Unique identifying number assigned to each condition on a plot. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. The condition at the center of subplot one is given condition number 1. Other conditions on the plot are assigned numbers sequentially. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot.

9. CONDPROP — Condition proportion. Proportion of the plot that is in the condition. To determine the acres a particular condition represents, multiply the plot expansion factor (EXPCURR) by CONDPROP. The sum of all condition proportions for a plot equals 1.0000.

10. LANDCLCD — Land class code. Indicates the basic land cover.

Code	Land class
1	Accessible forest: Forest land is defined as lands with at least a stocking of 10 (or at least 5 percent cover in chaparral type) of live forest trees of any size, or formerly having

such tree cover, and not currently developed for nonforest use. The minimum area for classification of forest land is usually 1 acre with a minimum width of 120 feet stem-to-stem. Forested strips must be at least 120 feet wide for a continuous length of at least 363 feet to meet the acre threshold. Unimproved roads and trails, as well as clearings in forest areas are classified as forest if less than 120 feet wide or smaller than 1 acre.

2 Nonforest: Land that has never supported forests or land formerly forested but now developed for uses such as agriculture (including Christmas tree plantations, orchards, nurseries, and agroforestry), residences, commerce, industry, city parks, or improved roads. If located within forest areas, unimproved roads and nonforested strips must be more than 120 feet wide. Clearings and other openings in a forest area must be more than 1 acre to qualify as nonforest land.

3 Noncensus water: Streams, sloughs, estuaries, and canals between 30 and 200 feet, and lakes, reservoirs, and ponds between 1 and 4.5 acres in area. This definition was used in the 1990 census and applied when the data became available. Earlier inventories defined noncensus water differently.

4 Census water: Streams, sloughs, estuaries, and canals more than 200 feet wide, and lakes, reservoirs, and ponds more than 4.5 acres in size (1990 Census definition).

5 Denied access: Access to the plot or a portion of the plot denied by the legal owner or by an owner of land with the only reasonable route to the plot.

6 Hazardous: Access prohibited due to dangerous situations (cliffs, military reservations, strip mines, etc.).

7 Not in the sample: Outside the boundaries of the sample population.

11. RESERVCD — Reserved status class code. Reserved land is land that is withdrawn by law(s) prohibiting the management of the land for the production of wood products.

Code	Reserved status class
0	Not reserved
1	Reserved
-1	Not recorded

12. OWNCD — Owner class code. Indicates the class in which the landowner (at the time of the inventory) belongs.

Code	Owner class
11	National Forest: Lands administered by USDA Forest Service, National Forest System
12	National Grassland
13	Other Forest Service
21	National Park Service: Lands administered by USDI National Park Service
22	Bureau of Land Management: Lands administered by USDI Bureau of Land Management
23	Fish and Wildlife Service
24	Department of Defense/Energy

25 Other federal
31 State
32 Local (County, Municipal, etc.)
33 Other non-federal public
41 Corporate
42 Non-governmental conservation/natural resources organization
43 Unincorporated local partnership/association/club
44 Native American (Indian)
45 Individual
46 Undifferentiated private (Used in counties where a more specific ownership code might disclose information about an individual landowner)
-1 Not recorded

13. OWNGRPCD — Ownership group class code. A broader group of landowner classes.

Code	Ownership group
1	Forest Service (OWNCD 11, 12, 13)
2	Other federal (OWNCD 21, 22, 23, 24, 25)
3	State and local government (OWNCD 31, 32, 33)
4	Private (OWNCD 41, 42, 43, 44, 45, 46)
-1	Not recorded

14. FORINDCD — Private owner industrial status code. Indicates whether the landowner owns and operates a primary wood processing plant. A primary wood processing plant is any commercial operation that originates the primary processing of wood on a regular and continuing basis. Examples include: pulp or paper mill, sawmill, panel board mill, post or pole mill.

Code	Private owner industrial status
0	Not owned by a company with wood processing plant
1	Owned by a company with wood processing plant
-1	Unavailable (Not collected or OWNCD=46)

15. ADFORCD — Administrative forest code. Identifies the administrative unit (Forest Service Region and National Forest) in which the condition is located. If the land is not administered by the Forest Service, the value for this variable is set to -1. The first two digits of the four-digit code are for the Region number and the last two digits are for the National Forest number. See Appendix E for a complete list of codes.

16. FORTYPCD — Forest type code (derived by algorithm). The forest typing algorithm is a hierarchical procedure. The algorithm begins by comparing the live tree stocking of softwoods and hardwoods and continues in a stepwise fashion comparing successively smaller subgroups of the preceding aggregation of initial types. The aggregated initial type groups used at each step of the process are called combined type groups. Each initial type group can occur in more than one of these combined groups. The stepwise progression proceeds in most cases until a plurality of an initial type group is identified. In certain situations the algorithm may revert to the field call. Detailed types are listed in Appendix D. Information on how data are assigned to these types for a particular State

can be obtained by contacting the appropriate FIA unit. Nonstocked forest land has a live tree stocking <10. All forest conditions are assigned a forest type, and nonforest conditions are assigned -1.

17. FLDTYPCD — Code for forest type of the condition (assigned by the field crew). Forest type is based on the tree species or species groups forming a plurality of all live stocking. Detailed types are listed in Appendix D. Information on how data are assigned to these types for a particular State can be obtained by contacting the appropriate FIA unit. Nonstocked forest land has a live tree stocking <10. All forest conditions are assigned a forest type, and nonforest conditions are assigned -1.

18. MAPDEN — Code for change in tree density. Codes other than 1 are used to indicate that tree density is the only factor differentiating two conditions. New in 1999.

Code	Change in tree density
1	Initial tree density
2	Density class 2 – different than initial density
3	Density class 3 – different than initial density and density class 2

19. STDAGE — Stand age. The average total age, to the nearest year, of the trees (plurality of all live trees not overtopped) in the predominant stand-size class of the condition, determined using local procedures. Age is difficult to measure and therefore stand age may have large measurement errors. Nonstocked stands are recorded as 0. If age is not available, -1 is recorded. Any inventory dated 1995 or later will contain stand ages recorded to the nearest year. For some older inventories, stand age was recorded in 10-year classes for stands <100 years old, 20-year age classes for stands between 100 and 200 years, and 100-year age classes if older than 200 years. The value recorded is the midpoint of the age class.

20. STDSZCD — Code for stand-size class derived by algorithm. A classification of the predominant (based on stocking) diameter class of live trees within the condition. Large diameter trees are at least 11.0 inches diameter for hardwoods and at least 9.0 inches diameter for softwoods. Medium diameter trees are at least 5.0 inches diameter but not as large as large diameter trees. Small diameter trees are less than 5.0 inches diameter.

Code	Stand-size class
1	Large diameter: Stands with an all live stocking of at least 10 (base 100); with more than 50 percent of the stocking in medium and large diameter trees; and with the stocking of large diameter trees equal to or greater than the stocking of medium diameter trees.
2	Medium diameter: Stands with an all live stocking of at least 10 (base 100); with more than 50 percent of the stocking in medium and large diameter trees; and with the stocking of large diameter trees less than the stocking of medium diameter trees.

3 Small diameter: Stands with an all live stocking value of at least 10 (base 100) on which at least 50 percent of the stocking is in small diameter trees.

4 Chaparral: Forest land with all live stocking less than 10 and at least 5 percent cover by species that make up chaparral communities.

5 Nonstocked: Forest land with all live stocking less than 10.

-1 Not recorded.

21. FLDSZCD Code for stand-size class assigned by the field crew. A classification of the predominant (based on stocking) diameter class of live trees within the condition.

Code Stand-size class

0 Nonstocked: Meeting the definition of accessible land and one of the following applies: 1) less than 10 percent stocked by trees of any size, and not classified as chaparral, or 2) for forest types where stocking standards are not available, less than 5 percent crown cover of trees of any size.

1 1.0 - 4.9 inches: At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees less than 5.0 inches DBH/DRC.

2 5.0 - 8.9 inches (softwoods)/5.0 - 10.9 inches (hardwoods): At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in softwoods 5.0 - 8.9 inches in diameter and/or hardwoods 5.0 - 10.9 in DBH, and for western woodland trees 5.0 - 8.9 inches in DRC.

3 9.0 - 19.9 inches (softwoods)/11.0 - 19.9 inches (hardwoods): At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in softwoods 9.0 - 19.9 inches in diameter and/or hardwoods 11.0 - 19.9 inches in DBH, and for western woodland trees 9.0 - 19.9 inches in DRC.

4 20.0 - 39.9 inches: At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in trees 20.0 - 39.9 inches DBH.

5 40.0+ inches: At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in trees over 40.0+ inches DBH.

6 Chaparral: Less than 10 percent stocking by trees of any size, and greater than 5 percent crown cover of

species that make up chaparral communities.
-1 Not recorded.

22. SITECLCD — Site productivity class code. A classification of forest land in terms of inherent capacity to grow crops of industrial wood. Identifies the potential growth in cubic feet/acre/year and is based on the culmination of mean annual increment of fully stocked natural stands.

Code	Site productivity class (cubic feet/acre/year)
1	225+
2	165-224
3	120-164
4	85-119
5	50-84
6	20-49
7	0-19
-1	Not recorded

23. SICOND — Site index. Site index (in feet) within the condition. If site index is not available for the condition, a -1 is recorded.

24. SIBASE — Site index base age. The base age (in years) of the site index curves used to derive site index. A -1 is recorded if there is no site index.

25. SISP — Site index species code. The species upon which the site index is based. If there is no SI or the species associated with SI is not known, -1 is recorded.

26. STDORGCD — Stand origin code. Method of stand regeneration for the trees in the condition. An artificially regenerated stand is established by planting or artificial seeding.

Code	Stand origin
0	Natural stands
1	Clear evidence of artificial regeneration
-1	Not evaluated

27. STDORGSP — Stand origin species code. The species code for the predominant artificially regenerated species (only when STDORGCD=1, –1 otherwise).

28. SLOPE — Slope. The average percent slope within the condition. Valid values are 0 through 200. Before 2000, the field crew measured condition slope. Beginning in 2000, slope is collected on subplots but no longer collected for conditions. For plots taken after 2000, the slope from the subplot representing the greatest percentage of the condition will be assigned as a surrogate. In the event that two or more subplots represent the same amount of area in the condition, the slope from the lower numbered subplot is used. When slope is not recorded or cannot be derived, this field contains -1.

29. ASPECT — Aspect. The direction (in degrees) from magnetic north of drainage for most of the condition, recorded as the azimuth of this direction. North is recorded as 360. When slope is zero, there is no

aspect and this item is set to zero. Before 2000, the field crew measured condition aspect. Beginning in 2000, aspect is collected on subplots but no longer collected for conditions. For plots taken after 2000, the aspect from the subplot representing the greatest percentage of the condition will be assigned as a surrogate. In the event that two or more subplots represent the same percentage of area in the condition, the slope from the lower numbered subplot is used. For conditions without a recorded or derived aspect, this field contains -1.

30. PHYSCLCD — Physiographic class code. The general effect of land form, topographical position, and soil on moisture available to trees. New or additional classes in 1999.

Code	Physiographic class
	Xeric sites (normally low or deficient in available moisture)
11	Dry Tops - Ridge tops with thin rock outcrops and considerable exposure to sun and wind.
12	Dry Slopes - Slopes with thin rock outcrops and considerable exposure to sun and wind. Includes most mountain/steep slopes with a southern or western exposure.
13	Deep Sands - Sites with a deep, sandy surface subject to rapid loss of moisture following precipitation. Typical examples include sand hills, ridges, and flats in the South, sites along the beach and shores of lakes and streams.
19	Other Xeric - All dry physiographic sites not described above.
	Mesic sites (normally moderate but adequate available moisture)
21	Flatwoods - Flat or fairly level sites outside of flood plains. Excludes deep sands and wet, swampy sites.
22	Rolling Uplands - Hills and gently rolling, undulating terrain and associated small streams. Excludes deep sands, all hydric sites, and streams with associated flood plains.
23	Moist Slopes and Coves - Moist slopes and coves with relatively deep, fertile soils. Often these sites have a northern or eastern exposure and are partially shielded from wind and sun. Includes moist mountain tops and saddles.
24	Narrow Flood Plains/Bottomlands - Flood plains and bottomlands less than 1/4 mile in width along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1-mile limit. Excludes swamps, sloughs, and bogs.
25	Broad Flood Plains/Bottomlands - Flood plains and bottomlands less than 1/4 mile or wider along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1/4-mile limit. Excludes swamps, sloughs, and bogs with year-round water problems within the 1/4-mile limit.
29	Other Mesic - All moderately moist physiographic sites not described above.

Hydric sites (normally abundant or overabundant moisture all year)

31 Swamps/Bogs - Low, wet, flat, forested areas usually quite extensive that are flooded for long periods except during periods of extreme drought. Excludes cypress ponds and small drains.

32 Small Drains - Narrow, stream-like, wet strands of forest land often without a well-defined stream channel. These areas are poorly drained or flooded throughout most of the year and drain the adjacent higher ground.

33 Bays and Wet Pocosins - Low, wet, boggy sites characterized by peaty or organic soils. May be somewhat dry during periods of extended drought. Examples include sites in the Lake States with lowland swamp conifers.

34 Beaver Ponds.

35 Cypress Ponds.

39 Other Hydric - All other hydric physiographic sites.

-1 Unavailable.

31. GSSTKCD — Growing-stock stocking code. Stocking of the condition by growing-stock trees including seedlings.

Code	Growing-stock stocking	
1	Overstocked	(100+ %)
2	Fully stocked	(60 – 99%)
3	Medium stocked	(35 – 59%)
4	Poorly stocked	(10 – 34%)
5	Nonstocked	(0 – 9%)
-1	Unavailable	

32. ALSTKCD — All live stocking code. Stocking of the condition by live trees including seedlings. Data are in classes as listed for GSSTKCD above. This variable may not be present for inventories using older designs.

33. TRTOPCD — Treatment opportunity class code. Identifies the physical opportunity to improve stand conditions by applying management practices. Determined only for timberland (SITECLCD 1-6). This variable is mandatory for nonindustrial private lands AND may not be available for other ownerships.

Code	Treatment opportunity class
1	Regeneration without site preparation: The area is characterized by the absence of a manageable stand because of inadequate stocking of growing stock. Growth will be much below the potential for the site if the area is left alone. Prospects are not good for natural regeneration. Artificial regeneration will require little or no site preparation.
2	Regeneration with site preparation: The area is characterized by the absence of a manageable stand because of inadequate stocking of growing stock. Growth will be much below the potential for the site if the area is left alone. Either natural or artificial regeneration will require site preparation.

3 Stand conversion: The area is characterized by stands of undesirable, chronically diseased, or off-site (found where not normally expected) species. Growth and quality will be much below the potential for the site if the area is left alone. The best prospect is for conversion to a different forest type or species.

4 Thinning seedlings and saplings: The stand is characterized by a dense stocking of growing stock. Stagnation appears likely if left alone. Stocking must be reduced to help crop trees attain dominance.

5 Thinning poletimber: The stand is characterized by a dense stocking of growing stock. Stocking must be reduced to prevent stagnation or to confine growth to selected, high-quality crop trees.

6 Other stocking control: The stand is characterized by an adequate stocking of seedlings, saplings, and poletimber growing stock, mixed with competing vegetation either overtopping or otherwise inhibiting the development of crop trees. The undesirable material must be removed to release overtopped trees, to prevent stagnation, or to improve composition, form, or growth of the residual stand.

7 Other intermediate treatments: The stand would benefit from other special treatments, such as fertilization to improve the growth potential of the site, and pruning to improve the quality of individual crop trees.

8 Clearcut harvest: The area is characterized by a mature or overmature sawtimber stand of sufficient volume to justify a commercial harvest. The best prospect is to harvest the stand and regenerate.

9 Partial cut harvest: The stand is characterized by poletimber- or sawtimber-size trees with sufficient merchantable volume for a commercial harvest, which will meet intermediate stand treatment needs or prepare the stand for natural regeneration. The stand is of a favored species composition and may be even or uneven aged. Included are such treatments as commercial thinning, seed tree, or shelterwood regeneration, and use of the selection system to maintain an uneven-age stand.

10 Salvage harvest: The stand is characterized by excessive damage to merchantable timber because of fire, insects, disease, wind, ice, or other destructive agents. The best prospect is to remove damaged or threatened material.

11 No treatment: No silvicultural treatment is needed.

-1 Not available/unclassified.

34. DSTRBCD1 Disturbance 1 code. Indicates the kind of disturbance occurring since the last measurement or within the last 5 years for new plots. The area affected by the disturbance must be at least 1 acre in size. A significant level of disturbance (mortality or damage to 25 percent of the trees in the condition) is required. New in 1999.

Code	Disturbance
0	No visible disturbance
10	Insect damage

20 Disease damage
30 Weather damage other than the following:
  31 Ice damage
  32 Wind damage
  33 Flood damage
  34 Drought damage
40 Fire damage (from crown and ground fire)
  41 Ground fire damage
  42 Crown fire damage
50 Damage from domestic animal/livestock
60 Damage from wild animals other than:
  61 Damage from beaver
  62 Damage from porcupine
  63 Damage from deer/ungulate
  64 Damage from bear
  65 Damage from rabbit
70 Damage caused by humans and not listed as a Treatment
80 Other natural
-1 Unavailable

35. DSTRBYR1 Year of Disturbance 1. Year in which Disturbance 1 is estimated to have occurred (-1 if not applicable). New in 1999.

36. DSTRBCD2 Disturbance 2 code. Indicates the kind of disturbance occurring since the last measurement or within the last 5 years for new plots. A significant level of disturbance (mortality or damage to 25 percent of the trees in the condition) is required. Use same codes as DSTRBCD1. New in 1999.

37. DSTRBYR2 Year of Disturbance 2. Year in which Disturbance 2 is estimated to have occurred (-1 if not applicable). New in 1999.

38. DSTRBCD3 Disturbance 3 code. Indicates the kind of disturbance occurring since the last measurement or within the last 5 years for new plots. A significant level of disturbance (mortality or damage to 25 percent of the trees in condition) is required. Use same codes as DSTRBCD1. New in 1999.

39. DSTRBYR3 Year of Disturbance 3. Year in which Disturbance 3 is estimated to have occurred (-1 if not applicable). New in 1999.

40. TRTCD1 Stand Treatment 1 code. Indicates the type of stand treatment that has occurred since the last measurement or within the last 5 years for new plots. The area affected by the treatment must be at least 1 acre in size. Inventories conducted before 1999 may record treatments occurring within the last 20 years for new plots. New in 1999.

Code	Stand treatment
0	No observable treatment.
10	Cutting: The removal of one or more trees from a stand.
20	Site Preparation: Clearing, slash burning, chopping, disking, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration.
30	Artificial Regeneration: Planting or direct seeding has resulted in a stand at least 50 percent stocked with live trees of any size.

40 Natural Regeneration: Growth of existing trees and/or natural seeding has resulted in a stand at least 50 percent stocked with live trees of any size.

50 Other Silvicultural Treatment: The use of fertilizers, herbicides, girdling, pruning, or other activities (not already listed above) designed to improve the commercial value of the residual stand.

-1 Unavailable.

41. TRTYR1 — Treatment year 1. Year in which Stand Treatment 1 is estimated to have occurred (-1 if not applicable). New in 1999.

42. TRTCD2 — Stand Treatment 2 code. Indicates the type of stand treatment that has occurred since the last measurement or within the last 5 years for new plots. Inventories conducted before 1999 may record treatments occurring within the last 20 years for new plots. Use same codes as TRTCD1. New in 1999.

43. TRTYR2 — Treatment year 2. Year in which Stand Treatment 2 is estimated to have occurred (-1 if not applicable). New in 1999.

44. TRTCD3 — Stand Treatment 3 code. Indicates the type of stand treatment that has occurred since the last measurement or within the last 5 years for new plots. Inventories conducted before 1999 may record treatments occurring within the last 20 years for new plots. Use same codes as TRTCD1. New in 1999.

45. TRTYR3 — Treatment year 3. Year in which Stand Treatment 3 is estimated to have occurred (-1 if not applicable). New in 1999.

46. PASTNFCD — Past nonforest/inaccessible land use code. For conditions classified as nonforest or inaccessible during the previous inventory but classified as accessible forest land during current inventory. Indicates the kind of land use occurring at the previous inventory. New in 1999.

Code	Past nonforest land use
10	Agricultural land
11	Cropland
12	Pasture (improved through cultural practices)
13	Idle farmland
14	Orchard
15	Christmas tree plantation
20	Rangeland
30	Developed
31	Cultural (business, residential, other intense human activity)
32	Rights-of-way (improved road, railway, power line)
33	Recreation (park, golf course, ski run)
40	Other (undeveloped beach, marsh, bog, non-census water)
90	Not sampled
91	Census water
92	Denied access
93	Hazardous
94	Not in sample
-1	Unavailable

47. PRESNFCD — Present nonforest land use code. Indicates the kind of land use occurring now for conditions previously classified as forest but now nonforest. Use same codes as PASTNFCD. New in 1999.

48. NFYEAR — Nonforest year. An estimate of the year that a previously forested condition was converted to a nonforest condition (-1 if not applicable). New in 1999.

Tree Table (Oracle table name is TREE)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	TREE	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	TREE	NUMBER (9)	Number	X
10.	CONDID	NUMBER (1)	Number	
11.	AZIMUTH	NUMBER (3)	Degrees	
12.	DIST	NUMBER (3,1)	Feet	
13.	PREVCOND	NUMBER (1)	Number	
14.	PREVSUBC	NUMBER (2)	Number	
15.	STATUSCD	NUMBER (1)	Coded	
16.	LEANCD	NUMBER (2)	Coded	
17.	UTILCD	NUMBER (1)	Coded	
18.	SPCD	NUMBER (3)	Coded	
19.	SPGRPCD	NUMBER (2)	Coded	
20.	DIA	NUMBER (5,2)	Inches	
21.	DIAHTCD	NUMBER (1)	Coded	
22.	HT	NUMBER (3)	Feet	
23.	HTCD	NUMBER (2)	Coded	
24.	ACTUALHT	NUMBER (3)	Feet	
25.	TREECLCD	NUMBER (2)	Coded	
26.	CR	NUMBER (3)	Percent	
27.	CCLCD	NUMBER (2)	Coded	
28.	TREEGRCD	NUMBER (2)	Coded	
29.	AGENTCD	NUMBER (2)	Coded	
30.	CULL	NUMBER (3)	Percent	
31.	DAMLOC1	NUMBER (2)	Coded	
32.	DAMTYP1	NUMBER (2)	Coded	
33.	DAMSEV1	NUMBER (2)	Coded	
34.	DAMLOC2	NUMBER (2)	Coded	
35.	DAMTYP2	NUMBER (2)	Coded	
36.	DAMSEV2	NUMBER (2)	Coded	
37.	DECAYCD	NUMBER (2)	Coded	
38.	STOCKING	NUMBER (5,2)	Percent	
39.	WDLDSTEM	NUMBER (3)	Number	
40.	TPACURR	NUMBER (11,6)	Trees/acre	
41.	TPAMORT	NUMBER (11,6)	Trees/acre/yr	
42.	TPAREMV	NUMBER (11,6)	Trees/acre/yr	
43.	TPAGROW	NUMBER (11,6)	Trees/acre	
44.	VOLCFNET	NUMBER (11,6)	Cu ft/tree	
45.	VOLCFGRS	NUMBER (11,6)	Cu ft/tree	
46.	VOLCSNET	NUMBER (11,6)	Cu ft/tree	
47.	VOLCSGRS	NUMBER (11,6)	Cu ft/tree	
48.	VOLBFNET	NUMBER (11,6)	Bd ft/tree	

(Tree Table continued on next page)

(Tree Table continued)

	Column name	Oracle data type	Value or unit of measure	Key data item
49.	VOLBFGRS	NUMBER (11,6)	Bd ft/tree	
50.	VOLCFSND	NUMBER (11,6)	Cu ft/tree	
51.	GROWCFGS	NUMBER (11,6)	Cu ft/year/tree	
52.	GROWBFSL	NUMBER (11,6)	Bd ft/year/tree	
53.	GROWCFAL	NUMBER (11,6)	Cu ft/year/tree	
54.	MORTCFGS	NUMBER (11,6)	Cu ft/tree	
55.	MORTBFSL	NUMBER (11,6)	Bd ft/tree	
56.	MORTCFAL	NUMBER (11,6)	Cu ft/tree	
57.	REMVCFGS	NUMBER (11,6)	Cu ft/tree	
58.	REMVBFSL	NUMBER (11,6)	Bd ft/tree	
59.	REMVCFAL	NUMBER (11,6)	Cu ft/tree	
60.	DRYBIOT	NUMBER (13,6)	Ovendry lbs/tree	
61.	DRYBIOM	NUMBER (13,6)	Ovendry lbs/tree	
62.	DIACHECK	NUMBER (2)	Coded	
63.	MORTYR	NUMBER (4)	Year	

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP — Subplot number. Subplot number used to identify on which subplot the tree was measured.

9. TREE — Tree number. A number used to uniquely identify a tree on a subplot.

10. CONDID — Condition number. Each condition mapped on a plot is assigned a number. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot. Each sample tree is assigned the number of the condition in which it is located.

11. AZIMUTH — Azimuth. The direction (in degrees) from subplot center (microplot center for saplings) to the center of the base of the tree (geographic center for multi-stemmed woodland species). Due north is represented by 360 degrees, not zero degrees.

12. DIST — Horizontal distance. The horizontal distance in feet from subplot center (microplot center for saplings) to the pith at the base of the tree (geographic center for multi-stemmed woodland species).

13. PREVCOND — Previous condition number. Identifies the condition within the plot on which the tree occurred at the previous inventory.

14. PREVSUBC — Previous subcycle number. Identifies the subcycle of the tree's previous condition. (In some instances a plot may have been measured more than once during an inventory cycle. Subcycle is then needed to uniquely identify the previous condition.)

15. STATUSCD — Tree status code. Identifies whether the sample tree is live, cut, or dead. Includes only dead and cut trees required to estimate aboveground biomass and net annual volume for growth, mortality, and removals. NOTE: New and replacement plots use only codes 1 and 2.

Code	Tree status
1	Live
2	Dead
3	Removal: Cut or killed as a result of harvesting or land clearing
4	Missed live tree
5	Missed mortality tree
6	Missed dead tree
7	No history

16. LEANCD — Lean angle code. Describes how much the tree is leaning. New in 1999.

Code	Lean angle
0	Standing (<45 degrees of lean)
1	Leaning (at least 45 degrees of lean)
2	Down (some part of bole touching the ground)
-1	Unavailable

17. UTILCD — Utilization class code. Identifies trees that have been cut and removed from the site.

Code	Utilization class
0	Not utilized
1	Utilized

18. SPCD — Species code. A standard tree species code. Codes for trees in the FIADB are listed in Appendix F.

19. SPGRPCD — Species group code. An FIA species group number. This number is used to produce many of the standard presentation tables. The assignment of individual species (SPCD) to these groups is shown in Appendix G. Individual FIA programs may further break these species groups down for published tables, but this is a common list that all published standard presentation tables must match.

20. DIA — Current diameter. The current diameter (in inches) of the sample tree at the point of diameter measurement. Check the DIAHTCD variable to determine the measurement point. DIA for live trees contains the measured value. DIA for cut and dead trees presents problems associated with uncertainty of when the tree was cut or died as well as structural deterioration of dead trees. Consult individual units for explanations of how DIA is collected for dead and cut trees.

21. DIAHTCD — Code for height of diameter measurement. The height above ground at which the diameter was obtained on the sample tree.

Code	Height of diameter
1	Breast height
2	Root collar
3	Stump

22. HT — Height. The total height of a sample tree (in feet) from the ground to the top of the main stem. The total height of a tree is not always its actual height. If the main stem is broken, the actual height is measured or estimated and the missing piece is added to the actual height. The amount added is determined by measuring the broken piece if it can be located on the ground; otherwise it is estimated. A value of -1 means that total height was not recorded for the tree.

23. HTCD — Height type code. Indicates how height was determined.

Code	Height type
1	Field measured (total and actual height)
2	Actual height measured, total height estimated in the field
3	Estimated visually
4	Estimated with a model
-1	Not measured or estimated

24. ACTUALHT — Actual height of tree. The length of the tree to the nearest foot from ground level to the highest remaining portion of the tree still present and attached to the bole. If the actual height is not measured or estimated, the value will be -1.

25. TREECLCD — Tree class code. The general quality of the tree. For cut, dead, and sound dead trees, TREECLCD of the tree at the time it died or was cut is estimated.

Code	Tree class
2	Growing stock: All trees of commercial species, except rough or rotten cull trees.
3	Rough cull: Trees that do not now, or prospectively, have at least one solid 8-foot section, reasonably free of form defect, on the merchantable bole or have 67 percent or more of the merchantable volume cull; more than half of this cull is due to sound dead wood cubic-foot loss or severe form defect volume loss. In California, Oregon, and Washington inventories, 75 percent or more cull, rather than 67 percent or more cull, applies. This class also contains all trees of noncommercial species.
4	Rotten cull: Trees with 67 percent or more of the merchantable volume cull, and more than half of this cull is due to rotten or missing cubic-foot volume loss. PNW uses a 75-percent cutoff.
-1	Not recorded.

26. CR — Compacted crown ratio. The percent of the tree bole supporting live, healthy foliage (the crown is ocularly compacted to fill in gaps) when compared to total height. Expressed as a percent of total tree height.

27. CCLCD — Crown class code. Primarily indicates the amount of sunlight received as opposed to the conventional "crown position" found in forestry textbooks.

Code	Crown class
1	Open grown: Trees with crowns that have received full light from above and from all sides throughout all or most of their life, particularly during early development.
2	Dominant: Trees with crowns extending above the general level of the canopy and receiving full light from above and partly from the sides; larger than the average trees in the stand, and with crowns well developed, but possibly somewhat crowded on the sides.
3	Codominant: Trees with crowns forming part of the general level of the crown cover and receiving full light from above, but comparatively little from the side. Usually with medium crowns more or less crowded on the sides.
4	Intermediate: Trees shorter than those in the preceding two classes, with crowns either below or extending into the canopy formed by the dominant and codominant trees, receiving little direct light from above, and none from the sides; usually with small crowns very crowded on the sides.

5	Overtopped: Trees with crowns entirely below the general canopy level and receiving no direct light either from above or the sides.
-1	Not recorded.

28. TREEGRCD — Tree grade code. Used by eastern FIA units but is not available in the West. This item is nonzero for all sawtimber-size trees regardless of status; however, it is not measured on all sawtimber-size trees on every plot. Sawtimber-size trees that are graded but do not contain a gradeable log are given a tree grade 5. Sawtimber-size trees that are not graded because of sampling design have a tree grade of -1. Trees smaller than sawtimber receive a tree grade of zero. Procedures to grade trees are different for each Eastern FIA program. Western programs do not grade trees.

Code	Tree grade
0	Tree too small to grade
1	Tree grade 1
2	Tree grade 2
3	Tree grade 3
4	Graded and contains a gradeable log but does not meet grade 3 standards
5	Graded but does not contain a gradeable log (local use trees).
-1	Not graded

29. AGENTCD — Damaging agent code. Beginning in 2000, this variable will be collected on only dead and cut trees. Before 2000, this variable was collected on all trees (live, dead, and cut). Cause of damage was recorded for live trees if the presence of damage or pathogen activity was serious enough to reduce the quality or vigor of the tree. When a tree was damaged by more than one agent, the most severe damage was coded. When no damage was observed on a live tree, 00 was recorded. Damage recorded for dead trees was the cause of death. When the cause of death could not be determined for a tree, 99 was recorded. Each FIA program records specific codes that may differ from one State to the next. These codes fall within the ranges listed below. For the specific codes used in a particular State, contact the FIA program responsible for that State.

Code	Cause of damage
00	No serious damage
10-19	Insect
20-29	Disease
30-39	Fire
40-49	Animal
50-59	Weather
60-69	Vegetation (e.g., competition or vines)
70-79	Unknown, not sure, other
80-89	Logging/human
90-99	Physical (e.g., hit by falling tree)
-1	Unavailable

30. CULL — Rotten and missing cull. The percent of the cubic-foot volume in a live or dead tally tree that is rotten or missing.

31. DAMLOC1 Damage location 1 code. Indicates where on the tree damage (meeting or exceeding a severity threshold) is present. New in 1999.

Code	Damage location
0	No damage
1	Roots (exposed) and stump (up to 12 inches from ground level)
2	Roots, stump, and lower bole
3	Lower bole (lower half of bole between stump and base of live crown)
4	Lower and upper bole
5	Upper bole (upper half of bole between stump and base of live crown)
6	Crown stem (main stem within the live crown)
7	Branches (>1 inch diameter at junction with main stem and within the live crown)
8	Buds and shoots of current year
9	Foliage
-1	Not recorded

32. DAMTYP1 Damage type 1 code. Indicates the kind of damage (meeting or exceeding a severity threshold) present. New in 1999.

Code	Damage type
1	Canker or gall
2	Conk, fruiting body, or sign of advanced decay
3	Open wound
4	Resinosis or gumosis
5	Crack or seam
11	Broken bole or broken root within 3 feet of bole
12	Broom on root or bole
13	Broken or dead root further than 3 feet from bole
20	Vines in the crown
21	Loss of apical dominance, dead terminal
22	Broken or dead branches
23	Excessive branching or brooms within the live crown
24	Damaged shoots, buds, or foliage
25	Discoloration of foliage
31	Other
-1	Not recorded

33. DAMSEV1 Damage severity 1 code. Indicates how much of the tree is affected. Legal severity codes vary by damage type and damage location and must exceed a threshold value. New in 1999.

Code	Damage severity (% of location affected)
0	1 to 9
1	10 to 19
2	20 to 29
3	30 to 39
4	40 to 49
5	50 to 59
6	60 to 69
7	70 to 79

8	80 to 89
9	90 to 99
-1	Not recorded

34. DAMLOC2 — Damage location 2 code. Indicates where on the tree secondary damage (meeting or exceeding a severity threshold) is present. Use same codes as DAMLOC1. New in 1999.

35. DAMTYP2 — Damage type 2 code. Indicates the kind of secondary damage (meeting or exceeding a severity threshold) present. Use same codes as DAMTYP1. New in 1999.

36. DAMSEV2 — Damage severity 2 code. Indicates how much of the tree is affected by the secondary damage. Legal severity codes vary by damage type and damage location and must exceed a threshold value. Use same codes as DAMSEV1. New in 1999.

37. DECAYCD — Dead tree decay code. Indicates the extent of decay in a standing dead tree. New in 1999.

Code	Dead tree decay
1	All limbs and branches are present; the top of the crown is still present; all bark remains; sapwood is intact, with minimal decay; heartwood is sound and hard.
2	There are few limbs and no fine branches; the top may be broken; a variable amount of bark remains; sapwood is sloughing with advanced decay; heartwood is sound at base but beginning to decay in the outer part of the upper bole.
3	Only limb stubs exist; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay in upper bole and is beginning at the base.
4	Few or no limb stubs remain; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay at the base and is sloughing in the upper bole.
5	No evidence of branches remains; the top is broken; little bark remains; sapwood is gone; heartwood is sloughing throughout.
-1	Not collected.

38. STOCKING — Tree stocking. A relative term used to describe (in percent) the adequacy of a given stand density in meeting a specific management objective. Species or forest type stocking functions were used to assess the stocking contribution of individual trees. These functions, which were developed using stocking guides, relate the area occupied by an individual tree to the area occupied by a tree of the same size growing in a fully stocked stand of like trees. The stocking of individual trees is used in the calculation of GSSTKCD and ALSTKCD on the COND table.

39. WDLDSTEM — Woodland tree species stem count. Used for tree species where diameter is measured at the root collar. For a stem to be counted, it must have a minimum stem size of 1 inch in diameter and 1 foot in length.

40. TPACURR — Trees per acre. Current number of trees per acre that the tree represents for calculating number of trees on forest land. Total volumes are calculated by summing the product of TPACURR, per tree values (i.e., VOLCFNET, VOLCFGRS, VOLCSNET, VOLCSGRS, VOLBFNET, VOLBFGRS, VOLCFSND, DRYBIOT, or DRYBIOM), and the appropriate area expander from the plot table.

41. TPAMORT — Mortality trees per acre per year. Number of trees per acre per year that the tree represents for calculating mortality on forest land. Mortality volume per acre per year is calculated by multiplying TPAMORT times MORTCFGS, MORTBFSL, or MORTCFAL for each tree. Total annual mortality volume is calculated by summing the product of the annual per acre mortality and the appropriate area expander from the plot table.

42. TPAREMV — Removals trees per acre per year. Number of trees per acre per year that the tree represents for calculating removals from forest land. Removal volume per acre per year is calculated by multiplying TPAREMV times REMVCFGS, REMVBFSL, or REMVCFAL for each tree. Total annual removal volume is calculated by summing the product of the annual per acre removal and the appropriate area expander from the plot table.

43. TPAGROW — Growth trees per acre. Number of trees per acre that the tree represents for calculating growth on forest land. Growth volume per acre per year is calculated by multiplying TPAGROW times GROWCFGS, GROWBFSL, or GROWCFAL for each tree. Total annual growth volume is calculated by summing the product of the annual per acre growth and the appropriate area expander from the plot table.

44. VOLCFNET — Net cubic-foot volume. The net volume of wood in the central stem of a sample tree 5.0 inches diameter or larger, from a 1-foot stump to a minimum 4-inch top diameter outside bark (DOB), or to where the central stem breaks into limbs all of which are less than 4.0 inches DOB. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Trees with DIA less than 5.0 inches have zero in this field. All trees measured after 1998 with DIA 5.0 inches or larger (including dead and cut trees) will have entries in this field. Does not include rotten, missing, and form cull.

45. VOLCFGRS — Gross cubic-foot volume. The total volume of wood in the central stem of a sample tree 5.0 inches diameter or larger, from a 1-foot stump to a minimum 4-inch top DOB, or to where the central stem breaks into limbs all of which are less than 4.0 inches DOB. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Trees with DIA less than 5.0 inches have zero in this field. All trees measured after 1998 with DIA 5.0 inches or larger (including dead and cut trees) have entries in this field. Includes rotten, missing and form cull.

46. VOLCSNET — Net cubic-foot volume in the saw-log portion. The net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top DOB. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per acre information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods) have zero in this field. All larger trees have entries in this field if they are growing-stock trees (TREECLCD=2). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

47. VOLCSGRS — Gross cubic-foot volume in the saw-log portion. This is the net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top DOB. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per acre information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods), have zero in this field. All larger trees have entries in this field if they are growing-stock trees (TREECLCD=2). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

48. VOLBFNET — Net board-foot volume in the saw-log portion. This is the net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top DOB. Volume is based on International 1/4-inch rule. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per unit area information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods) have zero in this field. All larger trees should have entries in this field if they are growing-stock trees (TREECLCD=2, including cut and dead trees). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

49. VOLBFGRS — Gross board-foot volume in the saw-log portion. This is the net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top DOB. Volume is based on International 1/4-inch rule. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per unit area information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods) have zero in this

field. All larger trees should have entries in this field if they are growing-stock trees (TREECLCD=2, including cut and dead trees). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

50. VOLCFSND — Sound cubic-foot volume. The volume of sound wood in the central stem of a sample tree 5.0 inches diameter or larger from a 1-foot stump to a minimum 4-inch top DOB or to where the central stem breaks into limbs all of which are less than 4.0 inches DOB. Form cull but not rotten cull is included. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Trees with DIA less than 5.0 inches have zero in this field. All trees with DIA 5.0 inches or larger (including dead and cut trees) have entries in this field.

51. GROWCFGS — Net annual merchantable cubic-foot growth of growing-stock tree. This is the net change in cubic-foot volume per year of this tree (for remeasured plots, $(V_2-V_1)/(t_2-t_1)$; where $_1$ and $_2$ denote the past and current measurement, respectively, V is volume, and t indicates year of measurement). Because this value is net growth, it may be a negative number. Negative growth values are usually due to mortality (V_2=0) but can also occur on live trees that have a net loss in volume because of damage, rot, or other causes. To expand to a per acre value, multiply by TPAGROW.

52. GROWBFSL — Net annual merchantable board-foot growth of sawtimber tree. This is the net change in board-foot volume per year of this tree (for remeasured plots $(V_2-V_1)/(t_2-t_1)$). Because this value is net growth, it may be a negative number. Negative growth values are usually due to mortality (V_2=0) but can also occur on live trees that have a net loss in volume because of damage, rot, or other causes. To expand to a per acre value, multiply by TPAGROW.

53. GROWCFAL — Net annual sound cubic-foot growth of live tree. The net change in cubic-foot volume per year of this tree (for remeasured plots $(V_2-V_1)/(t_2-t_1)$). Because this value is net growth, it may be a negative number. Negative growth values are usually due to mortality (V_2=0) but can also occur on live trees that have a net loss in volume because of damage, rot, or other causes. To expand to a per acre value, multiply by TPAGROW. GROWCFAL differs from GROWCFGS by the inclusion of form cull tree volume.

54. MORTCFGS — Cubic-foot volume of a growing-stock tree for mortality purposes. Represents the cubic-foot volume of a growing-stock tree at time of mortality. To obtain estimates of annual per acre mortality, multiply by TPAMORT.

55. MORTBFSL — Board-foot volume of a sawtimber tree for mortality purposes. Represents the board-foot (International 1/4-inch rule) volume of a sawtimber tree at time of mortality. To obtain estimates of annual per acre mortality, multiply by TPAMORT.

56. MORTCFAL — Sound cubic-foot volume of a tree for mortality purposes. Represents the cubic-foot volume of the tree at time of mortality. To obtain estimates of annual per acre mortality, multiply by TPAMORT. MORTCFAL differs from MORTCFGS by the inclusion of form cull tree volume.

57. REMVCFGS — Cubic-foot volume of a growing-stock tree for removal purposes. Represents the cubic-foot volume of the tree at time of removal. To obtain estimates of annual per acre removals, multiply by TPAREMV.

58. REMVBFSL — Board-foot volume of a sawtimber tree for removal purposes. Represents the board-foot (International 1/4-inch rule) volume of the tree at time of removal. To obtain estimates of annual per acre removals, multiply by TPAREMV.

59. REMVCFAL — Sound cubic-foot volume of the tree for removal purposes. Represents the cubic-foot volume of the tree at time of removal. To obtain estimates of annual per acre removals, multiply by TPAREMV. REMVCFAL differs from REMVCFGS by the inclusion of cull tree volume.

60. DRYBIOT — Total gross biomass ovendry weight for live trees. The total aboveground biomass of a sample tree 1.0 inch diameter or larger, including all tops and limbs (but excluding foliage). This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Calculated in ovendry pounds per tree. This field should have an entry for live trees if DIA is 1.0 inch or larger, regardless of TREECLCD; zero otherwise.

61. DRYBIOM — Merchantable stem biomass ovendry weight for live trees. The total gross biomass (including bark) of a tree 5.0 inches DBH or larger from a 1-foot stump to a minimum 4-inch top DOB of the central stem. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Calculated in ovendry pounds per tree. This field should have an entry for live trees if DIA is 5.0 inches or larger, regardless of TREECLCD; zero otherwise.

62. DIACHECK — Diameter check code. Indicates the reliability of the diameter measurement. New in 1999.

Code	Diameter check
0	Diameter accurately measured at standard measurement locations (e.g., measured at 4.5', or 3.5' above fork, or at root collar).
1	Diameter estimated at standard measurement location (e.g., estimated at 4.5' (fused stems, large swell at DBH)).
2	Diameter accurately measured at non-standard location (e.g., measured just above swells, cankers, etc.).
3	Diameter estimated at non-standard location (e.g., estimated above butt swell).
4	Diameter measured at nonstandard location on tree, but not same location as previous measurement (remeasurement trees only).
5	Diameter modeled in the office.
-1	Unavailable

63. MORTYR — Mortality year. The year in which a remeasured tree was estimated to have died. New in 1999. A value of -1 means that data are unavailable or that mortality year is not applicable.

Seedling Table (Oracle table name is SEEDLING)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SEEDLING	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	CONDID	NUMBER (1)	Number	X
10.	SPCD	NUMBER (3)	Coded	X
11.	SPGRPCD	NUMBER (2)	Coded	
12.	COUNTCD	VARCHAR2 (2)	Coded	
13.	STOCKING	NUMBER (5,2)	Percent	

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle indicates in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit number. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP — Subplot number. Subplot number used to identify on which subplot (of the plot) the tree was measured.

9. CONDID — Condition number. Each condition mapped on a plot is assigned a number. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot. Each sample seedling is assigned the number of the condition in which it is located.

10. SPCD — Species code. A standard tree species code. Codes for trees in the FIADB are listed in Appendix F.

11. SPGRPCD — Species group code. An FIA species group number. This number is used to produce many of the standard presentation tables. Individual species and corresponding tree species group codes are shown in Appendix G. Individual FIA programs may further break these species groups down for published tables, but this is a common list that all published standard presentation tables must match.

12. COUNTCD — Seedling count code. Indicates the number of seedlings (DIA <1.0 inches) present on the microplot. Conifer seedlings are at least 6 inches tall and hardwood seedlings are at least 12 inches tall. New in 1999.

Code	Seedling count
1	1
2	2
3	3
4	4
5	5
6+	6 or more

13. STOCKING — Tree stocking. Stocking (in percent) is a relative term used to describe the adequacy of a given stand density in meeting a specific management objective. Species or forest type stocking functions were used to assess the stocking contribution of individual trees. These functions, which were developed using stocking guides, relate the area occupied by an individual tree to the area occupied by a tree of the same size growing in a fully stocked stand of like trees. The stocking of individual trees is used in the calculation of GSSTKCD and ALSTKCD on the COND table.

Site Tree Table (Oracle table name is SITETREE)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SITETREE	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	CONDID	NUMBER (1)	Number	X
9.	TREE	NUMBER (4)	Number	X
10.	SPCD	NUMBER (3)	Coded	
11.	DIA	NUMBER (5,2)	Inches	
12.	HT	NUMBER (3)	Feet	
13.	AGEDIA	NUMBER(3)	Years	
14.	SPGRPCD	NUMBER (2)	Coded	
15.	SITREE	NUMBER (3)	Feet	
16.	SIBASE	NUMBER (3)	Years	

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle indicates in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. CONDID — Condition number. Each condition mapped on a plot is assigned a number. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot. Each site tree is assigned the number of the condition in which it is located.

9. TREE — Tree number. A number used to uniquely identify a site tree on a condition.

10. SPCD — Species code. A standard tree species code. Codes for trees in the FIADB are listed in Appendix F.

11. DIA — Current diameter. The current diameter (in inches) of the tree at the point of diameter measurement.

12. HT — Height. The total height of a sample tree (in feet) from the ground to the top of the main stem.

13. AGEDIA — Age (in years) of tree at the point of diameter measurement (DBH/DRC). Age is determined by an increment sample.

14. SPGRPCD — Species group code. An FIA species group number. Individual species (SPCD) and corresponding tree species group codes are shown in Appendix G.

15. SITREE — Site index. Site index (in feet) of the tree.

16. SIBASE — Site index base age. The base age (in years) of the site index curves used to derive site index.

Boundary Table (Oracle table name is BOUNDARY)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	BOUNDARY	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	SUBPTYP	NUMBER (1)	Coded	X
10.	BNDCHG	NUMBER (1)	Coded	
11.	CONTRAST	NUMBER (1)	Number	
12.	AZMLEFT	NUMBER (3)	Degrees	X
13.	AZMCORN	NUMBER (3)	Degrees	
14.	DISTCORN	NUMBER (2)	Feet	
15.	AZMRIGHT	NUMBER (3)	Degrees	X

1. TABLENM — Table name. Identifies the table to which the record belongs.

2. STATECD — State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE — Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle indicates in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP — Subplot number.

9. SUBPTYP — Subplot type code. Specifies whether the boundary data are for a subplot, microplot, or annular plot.

Code	Subplot type
1	Subplot boundary
2	Microplot boundary
3	Annular plot boundary

10. BNDCHG — Boundary change code. Indicates the relationship between previously recorded and current boundary information.

Code	Boundary change
0	No change: boundary is the same as indicated on plot map by previous crew.
1	New boundary, or boundary data have been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.
2	Boundary has been changed to correct an error from a previous crew.
3	Boundary has been changed to reflect a change in variable definition.

11. CONTRAST — Contrasting condition. Records the condition class number of the condition class that contrasts with the condition class located at the subplot center (for boundaries on the subplot or annular plot) or at the microplot center (for boundaries on the microplot), e.g., the condition class present on the other side of the boundary.

12. AZMLEFT — Left azimuth. Records the azimuth (in degrees) from the subplot, microplot, or annular plot center to the farthest left point (facing the contrasting condition class) where the boundary intersects the subplot, microplot, or annular plot circumference.

13. AZMCORN — Corner azimuth. Records the azimuth (in degrees) from the subplot, microplot, or annular plot center to a corner or curve in a boundary. If a boundary is best described by a straight line between the two circumference points, then 000 is recorded for AZMCORN.

14. DISTCORN — Corner distance. Records the horizontal distance, to the nearest 1 foot, from the subplot, microplot, or annular plot center to the boundary corner point.

15. AZMRIGHT — Right azimuth. Records the azimuth (in degrees) from subplot, microplot, or annular plot center to the farthest right point (facing the contrasting condition) where the boundary intersects the subplot, microplot, or annular plot circumference.

ALGORITHMS FOR SUMMARIZING DATA

Data in the FIA Database were designed for easy use with most database management systems, statistical packages, and other data summary software. Data are typically provided as comma-delimited ASCII files. Database management systems that support hierarchical data structures, as well as those based on the relational model, can easily process FIADB files. Chapter 3 should give the user of almost any software package the information needed to input an FIADB file into a processing system.

To assist users of FIADB files and to provide them with a benchmark or checkpoint for comparison to their own data processing systems, the FIA units provide a set of tables with each FIADB State file. The tables are a set of the standard presentation tables produced directly from the FIADB file. These standard presentation tables may not match published core tables exactly. Differences will vary by FIA unit and relate to rounding error and the allocation of State-level estimates down to the county level. Users concerned about differences can request an explanation from the FIA unit. Appendix B contains the format of the standard presentation tables produced from an FIADB file.

Users may wish to duplicate the standard presentation tables on their hardware. In doing so, they may find minor differences due to rounding and word length differences between their machines and the machine used to produce the original tables. Users may also want to screen the input data file so that it includes plot and tree records for only a limited geographic area, such as a group of counties. Then they can produce standard presentation tables for only that area.

The procedures or algorithms used to compute various tree-level data and expand them to population-level estimates are provided in tables 2 through 10. Inventories completed before the introduction of the Forest Health Monitoring (FHM) plot design in 1997 were designed to provide estimates of timberland area and growing-stock volume. As a result, a number of forest land statistics will be unavailable until the completion of a State's first inventory using the FHM plot design. In addition, before 1995, tree-level data were not collected on reserved and unproductive forest land. Estimates of growth, removals, and mortality from reserved and unproductive forest land may not be available until the completion of a State's second inventory using the FHM plot design.

Because of these limitations, the algorithms have been divided into three groups:

1) Algorithms that will work on all inventories (tables 2 through 6)
2) Algorithms that will work on inventories completed after 1999 (e.g., volume of all live trees on forest land) (tables 7 through 9)
3) Algorithms that can be applied to the second inventory cycle completed after 1999 (e.g., growth, removals, and mortality of all live trees on forest land) (table 10)

Those familiar with the relational data model and the standard Structured Query Language (SQL) database language available in many database management systems will find it easy to load FIADB files into one of these systems and to retrieve information from a loaded database.

Algorithms That Will Work on All Inventories

All the variables used in these algorithms are defined in Chapter 3. The variable prefixes "p.", "c.", "oc.", and "t." identify the database tables in which the variables reside. The variable prefix for the PLOT table is "p.". The variable prefix for the COND table is "c." for the current cycle and "oc." for the previous cycle. The variable prefix for the TREE table is "t.".

Table 2.—*Algorithms that expand condition-level items to population estimates. Each item is computed by summing the corresponding quantities over all conditions that meet the requirements.*

Units	Type	Calculation	Requirements
Acres	Area of all land and noncensus water	p.expcurr * c.condprop	c.landclcd in (1,2,3)
Acres	Area of forest land	p.expcurr * c.condprop	c.landclcd=1
Acres	Area of timberland	p.expcurr * c.condprop	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)

Table 3.—*Algorithms that expand tree-level items to population estimates of number of trees 1 inch in diameter or larger on timberland from FIADB tables. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Trees	Number of all live trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.dia>=1.0
Trees	Number of growing-stock trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=2 and t.dia>=1.0
Trees	Number of rough trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=3 and t.dia>=1.0
Trees	Number of rotten trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=4 and t.dia>=1.0

Table 4.—*Algorithms that expand tree-level items to population estimates of volume of trees on timberland. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Cuft	Merchantable volume of all live trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Cuft	Merchantable volume of growing-stock trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=2
Cuft	Merchantable volume of rough trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=3
Cuft	Merchantable volume of rotten trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=4
Cuft	Merchantable volume in the saw-log portion of growing-stock trees on timberland	p.expvol * t.tpacurr * t.volcsnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Bdft	Merchantable volume of sawtimber trees on timberland	p.expvol * t.tpacurr * t.volbfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1

Table 5.—*Algorithms that expand tree-level items to population estimates of growth, mortality, or removals on timberland. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Cuft/year	Net annual merchantable growth of growing-stock trees on timberland	p.expgrow * t.tpagrow * t.growcfgs	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Cuft/year	Annual merchantable mortality of growing-stock trees on timberland	p.expmort * t.tpamort * t.mortcfgs	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Cuft/year	Annual merchantable removals of growing-stock trees on timberland	p.expremv * t.tparemv * t.remvcfgs	None
Bdft/year	Net annual merchantable growth of sawtimber trees on timberland	p.expgrow * t.tpagrow * t.growbfsl	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Bdft/year	Annual merchantable mortality of sawtimber trees on timberland	p.expmort * t.tpamort * t.mortbfsl	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Bdft/year	Annual merchantable removals of sawtimber trees on timberland	p.expremv * t.tparemv * t.remvbfsl	None

Table 6.—*Algorithms that expand tree-level items to population estimates of biomass of trees on timberland. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Ovendry lbs.	Gross biomass of all live trees on timberland	p.expvol * t.tpacurr * t.drybiot	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Ovendry lbs.	Merchantable biomass of all live trees on timberland	p.expvol * t.tpacurr * t.drybiom	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1

Examples of SQL Statements That Will Work for All Inventories

To calculate the area of all land and noncensus water for the State of Michigan for the fifth inventory cycle (completed in 1993):

```
SELECT    SUM(p.expcurr * c.condprop)
FROM      plot   p,
          cond   c
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          (c.landclcd=1 OR c.landclcd=2 OR c.landclcd=3);
```

To calculate the area of forest land for the State of Michigan for the fifth inventory cycle (1993):

```
SELECT    SUM(p.expcurr * c.condprop)
FROM      plot   p,
          cond   c
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.landclcd=1;
```

To calculate the area of timberland for the State of Michigan for the fifth inventory cycle (1993):

```
SELECT    SUM(p.expcurr * c.condprop)
FROM      plot   p,
          cond   c
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.landclcd=1 AND
          c.reservcd=0 AND
          c.siteclcd in (1,2,3,4,5,6);
```

To calculate the number of all live white pine trees on timberland in the State of Michigan for the fifth inventory cycle (1993):

```
SELECT    SUM(p.expvol * t.tpacurr)
FROM      plot   p,
          cond   c,
          tree   t
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          p.statecd=t.statecd AND
          p.cycle=t.cycle AND
          p.subcycle=t.subcycle AND
          p.unitcd=t.unitcd AND
          p.countycd=t.countycd AND
          p.plot=t.plot AND
          t.condid=c.condid AND
          c.landclcd=1 AND
          c.reservcd=0 AND
          c.siteclcd in (1,2,3,4,5,6) AND
          t.statuscd=1 AND
          t.dia>=1.0 AND
          t.spcd=129;
```

To calculate the merchantable volume of all live white pine trees on timberland in the State of Michigan for the fifth inventory cycle (1993):

```
SELECT    SUM(p.expvol * t.tpacurr * t.volcfnet)
FROM      plot   p,
          cond   c,
          tree   t
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          p.statecd=t.statecd AND
          p.cycle=t.cycle AND
          p.subcycle=t.subcycle AND
          p.unitcd=t.unitcd AND
          p.countycd=t.countycd AND
          p.plot=t.plot AND
          t.condid=c.condid AND
          c.landclcd=1 AND
          c.reservcd=0 AND
          c.siteclcd in (1,2,3,4,5,6) AND
          t.statuscd=1 AND
          t.spcd=129;
```

To calculate the net annual merchantable growth of white pine growing-stock trees on timberland in the State of Michigan for the fifth inventory cycle (1980-1992):

```
SELECT    SUM(p.expgrow * t.tpagrow * t.growcfgs)
FROM      plot   p,
          cond   c,
          tree   t,
          cond   oc
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
          t.statecd=oc.statecd (+) AND
          (t.cycle-1)=oc.cycle (+) AND
          t.prevsubc=oc.subcycle (+) AND
          t.unitcd=oc.unitcd (+) AND
          t.countycd=oc.countycd (+) AND
          t.plot=oc.plot (+) AND
          t.prevcond=oc.condid (+) AND
          ((c.landclcd=1 and c.siteclcd in (1,2,3,4,5,6) and c.reservcd=0) OR
          (oc.landclcd=1 and oc.siteclcd in (1,2,3,4,5,6) and oc.reservcd=0)) AND
          t.spcd=129;
```

NOTE: We need to do an outer join for the COND record because there will be no record in the COND table for the previous cycle if the plot is a new plot (some FIA units modeled growth for new plots). An outer join will cause the value of oc.landclcd (land class from the previous cycle COND record) to be null if a record meeting the requirements is not found.

To calculate the annual merchantable mortality of white pine growing-stock trees on timberland in the State of Michigan for the fifth inventory cycle (1980-1992):

```
SELECT    SUM(p.expmort * t.tpamort * t.mortcfgs)
FROM      plot   p,
          cond   c,
          tree   t,
          cond   oc
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
```

```
p.plot=c.plot AND
c.statecd=t.statecd AND
c.cycle=t.cycle AND
c.subcycle=t.subcycle AND
c.unitcd=t.unitcd AND
c.countycd=t.countycd AND
c.plot=t.plot AND
c.condid=t.condid AND
t.statecd=oc.statecd (+) AND
(t.cycle-1)=oc.cycle (+) AND
t.prevsubc=oc.subcycle (+) AND
t.unitcd=oc.unitcd (+) AND
t.countycd=oc.countycd (+) AND
t.plot=oc.plot (+) AND
t.prevcond=oc.condid (+) AND
((c.landclcd=1 and c.siteclcd in (1,2,3,4,5,6) and c.reservcd=0) OR
(oc.landclcd=1 and oc.siteclcd in (1,2,3,4,5,6) and oc.reservcd=0)) AND
t.spcd=129;
```

NOTE: We need to do an outer join for the COND record because there will be no record in the COND table for the previous cycle if the plot is a new plot (some FIA units modeled mortality for new plots). An outer join will cause the value of oc.landclcd (land class from the previous cycle COND record) to be null if a record meeting the requirements is not found.

To calculate the annual merchantable removals of white pine growing-stock trees on timberland in the State of Michigan for the fifth inventory cycle (1980-1992):

```
SELECT    SUM(p.expremv * t.tparemv * t.remvcfgs)
FROM      plot    p,
          cond    c,
          tree    t
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
          t.spcd=129;
```

To calculate the total all live biomass of white pine trees on timberland in the State of Michigan for the fifth inventory cycle (1993):

```
SELECT    SUM(p.expvol * t.tpacurr * t.drybiot)
FROM      plot    p,
          cond    c,
          tree    t
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.unitcd=c.unitcd AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
          c.landclcd=1 AND
          c.reservcd=0 AND
          c.siteclcd in (1,2,3,4,5,6) AND
          t.statuscd=1 AND
          t.spcd=129;
```

Algorithms That Will Work on Inventories Completed After 1999

Table 7.—*Algorithms that expand tree-level items to population estimates of number of trees 1 inch in diameter or larger on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements*

Units	Type	Calculation	Requirements
Trees	Number of all live trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.dia>=1.0
Trees	Number of growing-stock trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2 and t.dia>=1.0
Trees	Number of rough trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.treeclcd=3 and t.dia>=1.0
Trees	Number of rotten trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.treeclcd=4 and t.dia>=1.0
Trees	Number of standing dead trees over 5 inches in diameter on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=2 and t.leanclcd in (0,1)=2 and t.dia>=5.0

Table 8.—*Algorithms that expand tree-level items to population estimates of volume of trees on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements*

Units	Type	Calculation	Requirements
Cuft	Merchantable volume of all live trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1
Cuft	Merchantable volume of growing-stock trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Cuft	Merchantable volume of all live rough trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=3
Cuft	Merchantable volume of all live rotten trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=4
Cuft	Merchantable volume of salvable dead trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=2
Cuft	Merchantable volume in the saw-log portion of sawtimber trees on forestland	p.expvol * t.tpacurr * t.volcsnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Bdft	Merchantable volume of sawtimber trees on forest land	p.expvol * t.tpacurr * t.volbfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Cuft	Sound volume of all live trees on timberland	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Cuft	Sound volume of all live trees on forest land	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and t.statuscd=1
Cuft	Sound volume of all live rough trees on forest land	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and t.statuscd=1 and t.treeclcd=3
Cuft	Sound volume of all live rotten trees on forest land	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and t.statuscd=1 and t.treeclcd=4
Cuft	Gross volume of all live trees on timberland	p.expvol * t.tpacurr * t.volcfgrs	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Cuft	Gross volume of all live trees on forest land	p.expvol * t.tpacurr * t.volcfgrs	c.landclcd=1 and t.statuscd=1
Cuft	Gross volume in the saw-log portion of saw-timber trees on forest land	p.expvol * t.tpacurr * t.volcsnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Bdft	Gross volume of saw-timber trees on forest land	p.expvol * t.tpacurr * t.volbfgrs	c.landclcd=1 and t.statuscd=1

Table 9.—*Algorithms that expand tree-level items to population estimates of biomass of trees on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Ovendry lbs.	Gross biomass of all live trees on forest land	p.expvol * t.tpacurr * t.drybiot	c.landclcd=1 and t.statuscd=1
Ovendry lbs.	Merchantable biomass of all live trees on forest land	p.expvol * t.tpacurr * t.drybiom	c.landclcd=1 and t.statuscd=1

Examples of SQL Statements That Will Work on Inventories Completed After 1999

To calculate the total number of all live white pine trees on forest land in the State of Michigan for the sixth inventory cycle (estimated year of completion 2004):

```
SELECT    SUM(p.expvol * t.tpacurr)
FROM      plot    p,
          cond    c,
          tree    t
WHERE     p.statecd=26 AND
          p.cycle=6 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          p.statecd=t.statecd AND
          p.cycle=t.cycle AND
          p.subcycle=t.subcycle AND
          p.unitcd=t.unitcd AND
          p.countycd=t.countycd AND
          p.plot=t.plot AND
          t.condid=c.condid AND
          c.landclcd=1 AND
          t.statuscd=1 AND
          t.dia>=1.0 AND
          t.spcd=129;
```

To calculate the merchantable volume of all live white pine trees on forest land in the State of Michigan for the sixth inventory cycle (estimated year of completion 2004):

```
SELECT    SUM(p.expvol * t.tpacurr * t.volcfnet)
FROM      plot    p,
          cond    c,
          tree    t
WHERE     p.statecd=26 AND
          p.cycle=5 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          p.statecd=t.statecd AND
          p.cycle=t.cycle AND
          p.subcycle=t.subcycle AND
          p.unitcd=t.unitcd AND
          p.countycd=t.countycd AND
          p.plot=t.plot AND
          t.condid=c.condid AND
          c.landclcd=1 AND
          t.statuscd=1 AND
          t.spcd=129;
```

To calculate the gross biomass of all live white pine trees on forest land in the State of Michigan for the sixth inventory cycle (estimated year of completion 2004):

```
SELECT    SUM(p.expvol * t.tpacurr * t.drybiot)
FROM      plot    p,
          cond    c,
          tree    t
WHERE     p.statecd=26 AND
          p.cycle=6 AND
          p.unitcd=c.unitcd AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
          c.landclcd=1 AND
          t.statuscd=1 AND
          t.spcd=129;
```

Algorithms That can be Applied to the Second Inventory Cycle Completed After 1999

Table 10.—*Algorithms that expand tree-level items to population estimates of growth, mortality or removals of trees on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Cuft/year	Net annual growth of all live trees on forest land	p.expgrow * t.tpagrow * t.growcfal	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual mortality of all live trees on forest land	p.expmort * t.tpamort * t.mortcfal	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual removals of all live trees on forest land	p.expremv * t.tparemv * t.remvcfal	c.landclcd=1 or oc.landclcd=1
Cuft/year	Net annual growth of growing-stock trees on forest land	p.expgrow * t.tpagrow * t.growcfgs	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual mortality of growing-stock trees on forest land	p.expmort * t.tpamort * t.mortcfgs	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual removals of growing-stock trees on forest land	p.expremv * t.tparemv * t.remvcfgs	c.landclcd=1 or oc.landclcd=1
Bdft/year	Net annual growth of saw-timber trees on forest land	p.expgrow * t.tpagrow * t.growbfsl	c.landclcd=1 or oc.landclcd=1
Bdft/year	Annual mortality of saw-timber trees on forest land	p.expmort * t.tpamort * t.mortbfsl	c.landclcd=1 or oc.landclcd=1
Bdft/year	Annual removals of saw-timber trees on forest land	p.expremv * t.tparemv * t.remvbfsl	c.landclcd=1 or oc.landclcd=1

Examples of SQL Statements That can be Applied to the Second Inventory Cycle Completed After 1999

To calculate the net annual growth of all live white pine trees on forest land in the State of Michigan for the seventh inventory cycle (estimated year of completion 2009):

```
SELECT    SUM(p.expgrow * t.tpagrow * t.growcfal)
FROM      plot   p,
          cond   c,
          tree   t,
          cond   oc
WHERE     p.statecd=26 AND
          p.cycle=7 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
```

```
t.statecd=oc.statecd (+) AND
(t.cycle-1)=oc.cycle (+) AND
t.prevsubc=oc.subcycle (+) AND
t.unitcd=oc.unitcd (+) AND
t.countycd=oc.countycd (+) AND
t.plot=oc.plot (+) AND
t.prevcond=oc.condid (+) AND
(c.landclcd=1 OR
oc.landclcd=1) AND
t.spcd=129;
```

To calculate the annual mortality of all live white pine trees on forest land in the State of Michigan for the seventh inventory cycle (estimated year of completion 2009):

```
SELECT    SUM(p.expmort * t.tpamort * t.mortcfal)
FROM      plot    p,
          cond    c,
          tree    t,
          cond    oc
WHERE     p.statecd=26 AND
          p.cycle=7 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
          t.statecd=oc.statecd (+) AND
          (t.cycle-1)=oc.cycle (+) AND
          t.prevsubc=oc.subcycle (+) AND
          t.unitcd=oc.unitcd (+) AND
          t.countycd=oc.countycd (+) AND
          t.plot=oc.plot (+) AND
          t.prevcond=oc.condid (+) AND
          (c.landclcd=1 OR
          oc.landclcd=1) AND
          t.spcd=129;
```

To calculate the annual removals of all live white pine trees on forest land in the State of Michigan for the seventh inventory cycle (estimated year of completion 2009):

```
SELECT    SUM(p.expremv * t.tparemv * t.remvcfal)
FROM      plot   p,
          cond   c,
          tree   t,
          cond   oc
WHERE     p.statecd=26 AND
          p.cycle=7 AND
          p.statecd=c.statecd AND
          p.cycle=c.cycle AND
          p.subcycle=c.subcycle AND
          p.unitcd=c.unitcd AND
          p.countycd=c.countycd AND
          p.plot=c.plot AND
          c.statecd=t.statecd AND
          c.cycle=t.cycle AND
          c.subcycle=t.subcycle AND
          c.unitcd=t.unitcd AND
          c.countycd=t.countycd AND
          c.plot=t.plot AND
          c.condid=t.condid AND
          t.statecd=oc.statecd (+) AND
          (t.cycle-1)=oc.cycle (+) AND
          t.prevsubc=oc.subcycle (+) AND
          t.unitcd=oc.unitcd (+) AND
          t.countycd=oc.countycd (+) AND
          t.plot=oc.plot (+) AND
          t.prevcond=oc.condid (+) AND
          (c.landclcd=1 OR
          oc.landclcd=1) AND
          t.spcd=129;
```

LITERATURE CITED

Hansen, Mark H.; Frieswyk, Thomas; Glover, Joseph F.; Kelly, John F. 1992. **The Eastwide forest inventory data base: users manual**. Gen. Tech. Rep. NC-151. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 48 p.

Woudenberg, Sharon W.; Farrenkopf, Thomas O. 1995. **The Westwide forest inventory data base: user's manual**. Gen. Tech. Rep. INT-GTR-317. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 67 p.

INDEX OF COLUMN NAMES

The following table lists column names used in the database tables, their location within the table, and a short description of the variable.

Column name	Table name	Location in table	Description
ACTUALHT	TREE	24	Actual height of tree.
ADFORCD	COND	15	Administrative forest.
AGEDIA	SITETREE	13	Age of tree at the point of diameter measurement (DBH/DRC).
AGENTCD	TREE	29	Damaging agent.
ALSTKCD	COND	32	All live stocking.
ASPECT	SUBPLOT	12	Subplot aspect.
ASPECT	COND	29	Aspect.
AZIMUTH	TREE	11	Azimuth.
AZMCORN	BOUNDARY	13	Corner azimuth.
AZMLEFT	BOUNDARY	12	Left azimuth.
AZMRIGHT	BOUNDARY	15	Right azimuth.
BNDCHG	BOUNDARY	10	Boundary change.
CCLCD	TREE	27	Crown class.
CENSUSYR	SURVEY	9	Census year.
CONDID	COND	8	Condition number.
CONDID	SEEDLING	9	Condition number.
CONDID	SITETREE	8	Condition number.
CONDID	TREE	10	Condition number.
CONDPROP	COND	9	Condition proportion.
CONGCD	PLOT	36	Congressional District.
CONTRAST	BOUNDARY	11	Contrasting condition.
COUNTCD	SEEDLING	12	Seedling count.
COUNTYCD	BOUNDARY	6	County code.
COUNTYCD	COND	6	County code.
COUNTYCD	COUNTY	4	County code.
COUNTYCD	PLOT	6	County code.
COUNTYCD	SEEDLING	6	County code.
COUNTYCD	SITETREE	6	County code.
COUNTYCD	SUBPLOT	6	County code.
COUNTYCD	TREE	6	County code.
COUNTYNM	COUNTY	5	County name.
CR	TREE	26	Compacted crown ratio.
CULL	TREE	30	Rotten and missing cull.
CYCLE	BOUNDARY	3	Inventory cycle number.
CYCLE	COND	3	Inventory cycle number.
CYCLE	PLOT	3	Inventory cycle number.
CYCLE	SEEDLING	3	Inventory cycle number.
CYCLE	SITETREE	3	Inventory cycle number.
CYCLE	SUBPLOT	3	Inventory cycle number.
CYCLE	SURVEY	3	Inventory cycle number.
CYCLE	TREE	3	Inventory cycle number.
DAMLOC1	TREE	31	Damage location 1.
DAMLOC2	TREE	34	Damage location 2.
DAMSEV1	TREE	33	Damage severity 1.
DAMSEV2	TREE	36	Damage severity 2.
DAMTYP1	TREE	32	Damage type 1.

(Appendix A continued on next page)

(Appendix A continued)

Column name	Table name	Location in table	Description
DAMTYP2	TREE	35	Damage type 2.
DECAYCD	TREE	37	Dead tree decay.
DESIGNCD	PLOT	13	Plot design.
DIA	SITETREE	11	Current diameter.
DIA	TREE	20	Current diameter.
DIACHECK	TREE	62	Diameter check.
DIAHTCD	TREE	21	Height of diameter measurement.
DIST	TREE	12	Horizontal distance.
DISTCORN	BOUNDARY	14	Corner distance.
DRYBIOM	TREE	61	Merchantable stem biomass ovendry weight for live trees.
DRYBIOT	TREE	60	Total gross biomass ovendry weight for live trees.
DSTRBCD1	COND	34	Disturbance 1.
DSTRBCD2	COND	36	Disturbance 2.
DSTRBCD3	COND	38	Disturbance 3.
DSTRBYR1	COND	35	Year of disturbance 1.
DSTRBYR2	COND	37	Year of disturbance 2.
DSTRBYR3	COND	39	Year of disturbance 3.
ECOSUBCD	PLOT	35	Ecological subsection.
ELEV	PLOT	24	Elevation.
EXPCHNG	PLOT	32	Periodic change expansion factor.
EXPCURR	PLOT	25	Current expansion factor.
EXPGROW	PLOT	27	Growth expansion factor.
EXPMORT	PLOT	29	Mortality expansion factor.
EXPREMV	PLOT	31	Removals expansion factor.
EXPVOL	PLOT	26	Volume expansion factor.
FLDSZCD	COND	21	Stand-size class assigned by the field crew.
FLDTYPCD	COND	17	Forest type of the condition assigned by the field crew.
FORINDCD	COND	14	Private owner industrial status.
FORTYPCD	COND	16	Forest type of the condition derived by algorithm.
GROWBFSL	TREE	52	Net annual merchantable board-foot growth of sawtimber tree.
GROWCD	PLOT	28	Type of annual volume growth.
GROWCFAL	TREE	53	Net annual sound cubic-foot growth of live tree.
GROWCFGS	TREE	51	Net annual merchantable cubic-foot growth of growing-stock tree.
GSSTKCD	COND	31	Growing-stock stocking.
HT	SITETREE	12	Height.
HT	TREE	22	Height.
HTCD	TREE	23	Height type.
INVYR	SURVEY	7	Inventory year.
KINDCD	PLOT	12	Plot kind.
LANDCLCD	COND	10	Land class.
LAT	PLOT	22	Latitude NAD 83 datum.
LEANCD	TREE	16	Lean angle.
LON	PLOT	23	Longitude NAD 83 datum.
MANUAL	PLOT	37	Field manual version.
MAPDEN	COND	18	Change in tree density.
MEASDAY	PLOT	10	Measurement day.
MEASMON	PLOT	9	Measurement month.
MEASYEAR	PLOT	8	Measurement year.
MICRCOND	SUBPLOT	10	Microplot center condition.
MODDATE	SURVEY	8	Date the data were last modified for this State, cycle, and subcycle.
MORTBFSL	TREE	55	Board-foot volume of a sawtimber tree for mortality purposes.

(Appendix A continued on next page)

(Appendix A continued)

Column name	Table name	Location in table	Description
MORTCD	PLOT	30	Type of annual mortality volume.
MORTCFAL	TREE	56	Sound cubic-foot volume of a tree for mortality purposes.
MORTCFGS	TREE	54	Cubic-foot volume of a growing-stock tree for mortality purposes.
MORTYR	TREE	63	Mortality year.
NFSYR	SURVEY	10	National Forest System Area Control Year.
NFYEAR	COND	48	Nonforest year.
NOTES	SURVEY	13	An optional item where notes about the inventory may be stored.
NUMPANEL	SURVEY	12	Number of panels.
OWNCD	COND	12	Owner class.
OWNGRPCD	COND	13	Ownership group class.
P2PANEL	PLOT	33	Phase 2 panel number.
P3PANEL	PLOT	34	Phase 3 panel number.
PASTNFCD	COND	46	Past nonforest/inaccessible land use.
PHYSCLCD	COND	30	Physiographic class.
PLOT	BOUNDARY	7	Plot number.
PLOT	COND	7	Plot number.
PLOT	PLOT	7	Plot number.
PLOT	SEEDLING	7	Plot number.
PLOT	SITETREE	7	Plot number.
PLOT	SUBPLOT	7	Plot number.
PLOT	TREE	7	Plot number.
PRESNFCD	COND	47	Present nonforest land use.
PREVCOND	TREE	13	Previous condition number.
PREVSUBC	TREE	14	Previous subcycle number.
PUBUSECD	PLOT	17	Public use restrictions.
RDCD	PLOT	14	Trails or roads.
RDDISTCD	PLOT	15	Distance to improved road.
RDUSECD	PLOT	16	Road use restrictions.
REMPER	PLOT	11	Remeasurement period.
REMVBFSL	TREE	58	Board-foot volume of a sawtimber tree for removal purposes.
REMVCFAL	TREE	59	Sound cubic-foot volume of the tree for removal purposes.
REMVCFGS	TREE	57	Cubic-foot volume of a growing-stock tree for removal purposes.
RESERVCD	COND	11	Reserved status class.
REUSECD1	PLOT	18	Recreation use code 1.
REUSECD2	PLOT	19	Recreation use code 2.
REUSECD3	PLOT	20	Recreation use code 3.
RSCD	SURVEY	11	Region or Station ID.
SIBASE	COND	24	Site index base age.
SIBASE	SITETREE	16	Site index base age.
SICOND	COND	23	Site index.
SISP	COND	25	Site index species.
SITECLCD	COND	22	Site productivity class.
SITREE	SITETREE	15	Site index.
SLOPE	COND	28	Slope.
SLOPE	SUBPLOT	11	Subplot slope.
SPCD	SEEDLING	10	Species code.
SPCD	SITETREE	10	Species code.
SPCD	TREE	18	Species code.
SPGRPCD	SEEDLING	11	Species group.
SPGRPCD	SITETREE	14	Species group.
SPGRPCD	TREE	19	Species group.

(Appendix A continued on next page)

(Appendix A continued)

Column name	Table name	Location in table	Description
STATEAB	SURVEY	5	State abbreviation.
STATECD	BOUNDARY	2	State code.
STATECD	COND	2	State code.
STATECD	COUNTY	2	State code.
STATECD	PLOT	2	State code.
STATECD	SEEDLING	2	State code.
STATECD	SITETREE	2	State code.
STATECD	SUBPLOT	2	State code.
STATECD	SURVEY	2	State code.
STATECD	TREE	2	State code.
STATENM	SURVEY	6	State name.
STATUSCD	TREE	15	Tree status.
STDAGE	COND	19	Stand age.
STDORGCD	COND	26	Stand origin.
STDORGSP	COND	27	Stand origin species.
STDSZCD	COND	20	Stand-size class derived by algorithm.
STOCKING	SEEDLING	13	Tree stocking.
STOCKING	TREE	38	Tree stocking.
SUBCYCLE	BOUNDARY	4	Inventory subcycle number.
SUBCYCLE	COND	4	Inventory subcycle number.
SUBCYCLE	PLOT	4	Inventory subcycle number.
SUBCYCLE	SEEDLING	4	Inventory subcycle number.
SUBCYCLE	SITETREE	4	Inventory subcycle number.
SUBCYCLE	SUBPLOT	4	Inventory subcycle number.
SUBCYCLE	SURVEY	4	Inventory subcycle number.
SUBCYCLE	TREE	4	Inventory subcycle number.
SUBP	BOUNDARY	8	Subplot number.
SUBP	SEEDLING	8	Subplot number.
SUBP	SUBPLOT	8	Subplot number.
SUBP	TREE	8	Subplot number.
SUBPCOND	SUBPLOT	9	Subplot center condition.
SUBPTYP	BOUNDARY	9	Subplot type.
TABLENM	BOUNDARY	1	Table name.
TABLENM	COND	1	Table name.
TABLENM	COUNTY	1	Table name.
TABLENM	PLOT	1	Table name.
TABLENM	SEEDLING	1	Table name.
TABLENM	SITETREE	1	Table name.
TABLENM	SUBPLOT	1	Table name.
TABLENM	SURVEY	1	Table name.
TABLENM	TREE	1	Table name.
TPACURR	TREE	40	Trees per acre.
TPAGROW	TREE	43	Growth trees per acre.
TPAMORT	TREE	41	Mortality trees per acre per year.
TPAREMV	TREE	42	Removals trees per acre per year.
TREE	SITETREE	9	Tree number.
TREE	TREE	9	Tree number.
TREECLCD	TREE	25	Tree class.
TREEGRCD	TREE	28	Tree grade.
TRTCD1	COND	40	Stand treatment 1.
TRTCD2	COND	42	Stand treatment 2.
TRTCD3	COND	44	Stand treatment 3.
TRTOPCD	COND	33	Treatment opportunity class.
TRTYR1	COND	41	Treatment year 1.

(Appendix A continued on next page)

(Appendix A continued)

Column name	Table name	Location in table	Description
TRTYR2	COND	43	Treatment year 2.
TRTYR3	COND	45	Treatment year 3.
UNITCD	BOUNDARY	5	Survey unit number.
UNITCD	COND	5	Survey unit number.
UNITCD	COUNTY	3	Survey unit number.
UNITCD	PLOT	5	Survey unit number.
UNITCD	SEEDLING	5	Survey unit number.
UNITCD	SITETREE	5	Survey unit number.
UNITCD	SUBPLOT	5	Survey unit number.
UNITCD	TREE	5	Survey unit number.
UNITNM	COUNTY	6	Unit name.
UTILCD	TREE	17	Utilization class.
VOLBFGRS	TREE	49	Gross board-foot volume in the saw-log portion.
VOLBFNET	TREE	48	Net board-foot volume in the saw-log portion.
VOLCFGRS	TREE	45	Gross cubic-foot volume.
VOLCFNET	TREE	44	Net cubic-foot volume.
VOLCFSND	TREE	50	Sound cubic-foot volume.
VOLCSGRS	TREE	47	Gross cubic-foot volume in the saw-log portion.
VOLCSNET	TREE	46	Net cubic-foot volume in the saw-log portion.
WATERCD	PLOT	21	Water on plot.
WATERDEP	SUBPLOT	13	Water or snow depth.
WDLDSTEM	TREE	39	Woodland tree species stem count.

FIADB STANDARD PRESENTATION TABLES

This appendix contains examples of the standard presentation tables that are included in all FIA inventory reports. Tables in reports may sometimes differ slightly from the basic format because of regional differences and local needs and problems. Classes that do not contain any data may not be reported. For example, in Iowa, there is no National Forest land, so a column headed "National Forest" will not appear in any table by ownership class. In some regions, more detailed data may be important, so a heading may be broken down into subheadings. For example, in the South, it is important to distinguish between natural and planted pines. The pine species and forest type headings for standard presentation tables in many Southern States will be broken down further to meet the need for more specific data. In some instances, data may not always be available at the county level, and county data may need to be combined under broader headings. Variations should not be drastic enough to compromise the standardization of the tables.

Table 1.—*Area of land by county and major land-use class, (reporting area), (date)*
(In thousand acres)

County	Total land area	Forest land				Other land
		Total forest	Timberland	Reserved forest land	Other forest land	
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
.	.	.	.	.	.	.
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.	.	.	.	.	.	.
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 2.—*Area of timberland by county and ownership class, (reporting area), (date)*
(In thousand acres)

County	All ownerships	National forest	Other federal	State	County and municipal	Indian	Forest industry	Individual	Corporate
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
.	.	.	.	.	.	.	.	.	.
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.	.	.	.	.	.	.	.	.	.
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 3.—*Area of timberland by county and forest type group, (reporting area), (date)*
(In thousand acres)

County	Total	Forest type group						
		White-red-jack pine	Spruce-fir	Oak-hickory	Elm-ash-cottonwood	Maple-beech-birch	Aspen-birch	Non-stocked
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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.	.	.	.	.	.	.	.	.
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 4.—*Area of timberland by county and stand-size class, (reporting area), (date)*
(In thousand acres)

County	All stands	Stand-size class			
		Sawtimber	Poletimber	Sapling-seedling	Nonstocked
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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.	.	.	.	.	.
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 5.—*Area of timberland by county and potential productivity class, (reporting area), (date)*
(In thousand acres)

County	All classes	Potential productivity class (cubic feet of growth per acre per year)				
		165+	120 - 164	85 - 119	50 - 84	20 - 49
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 6.—*Area of timberland by county and stocking class of growing-stock trees, (reporting area), (date)*
(In thousand acres)

County	All classes	Stocking class of growing-stock trees				
		Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 7.—*Area of timberland by forest type group and ownership class, (reporting area), (date)*
(In thousand acres)

Forest type group	All ownerships	Ownership class							
		National forest	Other federal	State	County and municipal	Indian	Forest industry	Individual	Corporate
White-red-jack pine	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Spruce-fir	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Oak-hickory	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Elm-ash-cottonwood	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Maple-beech-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Aspen-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Nonstocked	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 8.—*Area of timberland by ownership class and stocking class of growing-stock trees, (reporting area), (date)*

(In thousand acres)

Ownership class	All classes	Stocking class of growing-stock trees				
		Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked
National forest	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Other federal	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
State	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County and municipal	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Indian	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Forest industry	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Corporate	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Individual	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
All ownerships	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 9.—*Area of timberland by forest type group and stand-size class, (reporting area), (date)*
(In thousand acres)

Forest type group	All stands	Stand-size class			
		Sawtimber	Poletimber	Seedling-sapling	Nonstocked
White-red-jack pine	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Spruce-fir	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Oak-hickory	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Elm-ash-cottonwood	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Maple-beech-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Aspen-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Nonstocked	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 10.—*Number of all live trees on timberland by species group and diameter class, (reporting area), (date)*
(In thousand trees)

Species group	All classes	Diameter class (inches)											
		1.0 - 2.9	3.0 - 4.9	5.0 - 6.9	7.0- 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 11.—*Number of growing-stock trees on timberland by species group and diameter class, (reporting area), (date)*
(In thousand trees)

Species group	All classes	Diameter class (inches)											
		1.0 - 2.9	3.0 - 4.9	5.0 - 6.9	7.0- 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 12.—*Merchantable volume of growing-stock trees on timberland by species group and diameter class, (reporting area), (date)*
(In thousand cubic feet)

Species group	All classes	Diameter class (inches)									
		5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 13.—*Merchantable volume in the saw-log portion of growing-stock trees on timberland by species group and diameter class, (reporting area), (date)*

(In thousand cubic feet)

Species group	All classes	Diameter class (inches) 9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 14.—*Merchantable volume of sawtimber trees on timberland by species group and diameter class, (reporting area), (date)*

(In thousand board feet)

Species group	All classes	Diameter class (inches) 9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 15.—*Merchantable volume of growing-stock trees and sawtimber trees on timberland by county and major species group, (reporting area), (date)*

County	Growing stock (thousand cubic feet) All species	Major species group Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Sawtimber (thousand board feet) All species	Major species group Pine	Other softwoods	Soft hardwoods	Hard hardwoods
County 1	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 2	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 3	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 16.—*Merchantable volume of all live and dead trees on timberland by class of timber and major species group, (reporting area), (date)*

(In thousand cubic feet)

Class of timber	All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
Live trees					
Growing-stock trees					
Sawtimber					
Saw-log portion	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Upper stem portion	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All growing-stock trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Cull trees					
Rough trees					
Sawtimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Rotten trees					
Sawtimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All cull trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All live trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Salvable dead trees					
Sawtimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All salvable dead trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All classes of timber	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 17.—*Merchantable volume of all live trees and growing-stock trees on timberland by ownership class and major species group, (reporting area), (date)*

(In thousand cubic feet)

Ownership class	All live trees					Growing-stock trees				
		Major species group					Major species group			
	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods
National forest	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other federal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
State	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County and municipal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Indian	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Forest industry	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Corporate	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Individual	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 18.—*Merchantable volume of growing-stock trees on timberland by forest type group and major species group, (reporting area), (date)*

(In thousand cubic feet)

Forest type group	All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
White-red-jack pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Spruce-fir	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Oak-hickory	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Elm-ash-cottonwood	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Maple-beech-birch	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Aspen-birch	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Nonstocked	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 19.—*Net annual merchantable growth of growing-stock trees and sawtimber trees on timberland by county and major species group, (reporting area), (date)*

	Growing stock (in thousand cubic feet)					Sawtimber (in thousand board feet)				
		Species group					Species group			
County	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods
County 1	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 2	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 3	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 20.—*Annual merchantable removals of growing-stock trees and sawtimber trees on timberland by county and major species group, (reporting area), (date)*

	Growing stock (thousand cubic feet)					Sawtimber (thousand board feet)				
		Major species group					Major species group			
County	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods
County 1	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 2	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 3	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 21.—*Net annual merchantable growth and annual merchantable removals of growing-stock trees and sawtimber trees on timberland by species group, (reporting area), (date)*

Species group	Growing stock (thousand cubic feet)		Sawtimber (thousand board feet)	
	Average net annual growth	Average annual removals	Average net annual growth	Average annual removals
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 22.—*Annual merchantable mortality of growing-stock trees and sawtimber trees on timberland by species group, (reporting area), (date)*

Species group	Growing stock (Thousand cubic feet)	Sawtimber (Thousand board feet)
Longleaf and slash pine	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx

Table 23.—*Net annual merchantable growth and annual merchantable removals of growing-stock trees on timberland by ownership class and major species group, (reporting area), (date)*

Ownership class	Growth					Removals				
	All species	Major species group				All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
National forest	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other federal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
State	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County and municipal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Indian	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Forest industry	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Individual	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Corporate	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All ownerships	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 24.—*Net annual merchantable growth and annual merchantable removals of sawtimber trees on timberland by ownership class and major species group, (reporting area), (date)*

Ownership class	Growth					Removals				
	All species	Major species group				All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
National forest	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other federal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
State	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County and municipal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Indian	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Forest industry	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Individual	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Corporate	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All ownerships	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 25.—*Total gross biomass ovendry weight for live trees on timberland by species group and diameter class, (reporting area), (date)*

(In thousand pounds)

Species group	All classes	1.0 - 2.9	3.0 - 4.9	5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

STATE, SURVEY UNIT, AND COUNTY CODES

01 Alabama

01 Southwest-South

003 Baldwin
039 Covington
053 Escambia
097 Mobile
129 Washington

02 Southwest-North

023 Choctaw
025 Clarke
035 Conecuh
091 Marengo
099 Monroe
119 Sumter
131 Wilcox

03 Southeast

001 Autauga
005 Barbour
011 Bullock
013 Butler
017 Chambers
021 Chilton
031 Coffee
041 Crenshaw
045 Dale
047 Dallas
051 Elmore
061 Geneva
067 Henry
069 Houston
081 Lee
085 Lowndes
087 Macon
101 Montgomery
109 Pike
113 Russell
123 Tallapoosa

04 West Central

007 Bibb
057 Fayette
063 Greene
065 Hale
075 Lamar
093 Marion
105 Perry
107 Pickens
125 Tuscaloosa

05 North Central

009 Blount
015 Calhoun
019 Cherokee
027 Clay
029 Cleburne
037 Coosa
043 Cullman
055 Etowah
073 Jefferson
111 Randolph
115 St. Clair
117 Shelby
121 Talladega
127 Walker
133 Winston

06 North

033 Colbert
049 DeKalb
059 Franklin
071 Jackson
077 Lauderdale
079 Lawrence
083 Limestone
089 Madison
095 Marshall
103 Morgan

02 Alaska

01 Alaska

013 Aleutians East Borough
016 Aleutians West Census Area
020 Anchorage Borough
050 Bethel Census Area
060 Bristol Bay Borough
070 Dillingham Census Area
090 Fairbanks North Star Borough
100 Haines Borough
110 Juneau Borough
122 Kenai Peninsula Borough
130 Ketchikan Gateway Borough
150 Kodiak Island Borough
164 Lake and Peninsula Borough
170 Matanuska-Susitna Borough
180 Nome Census Area
185 North Slope Borough
188 Northwest Arctic Borough
201 Prince of Wales-Outer Ketchikan Census Area
220 Sitka Borough
231 Skagway-Yakutat-Angoon Census Area
240 Southeast Fairbanks Census Area
261 Valdez-Cordova Census Area
270 Wade Hampton Census Area
280 Wrangell-Petersburg Census Area
290 Yukon-Koyukuk Census Area

04 Arizona

01 Southern

003 Cochise
009 Graham
011 Greenlee
012 La Paz
013 Maricopa
019 Pima
021 Pinal

023 Santa Cruz
027 Yuma

02 Northern
001 Apache
005 Coconino
007 Gila
015 Mohave
017 Navajo
025 Yavapai

05 Arkansas

01 South Delta
001 Arkansas
017 Chicot
041 Desha
069 Jefferson
077 Lee
079 Lincoln
085 Lonoke
095 Monroe
107 Phillips
117 Prairie

02 North Delta
021 Clay
031 Craighead
035 Crittenden
037 Cross
055 Greene
067 Jackson
075 Lawrence
093 Mississippi
111 Poinsett
123 St. Francis
147 Woodruff

03 Southwest
003 Ashley
011 Bradley
013 Calhoun
019 Clark
025 Cleveland
027 Columbia
039 Dallas
043 Drew
053 Grant
057 Hempstead
059 Hot Spring
061 Howard
073 Lafayette
081 Little River
091 Miller
099 Nevada
103 Ouachita
109 Pike
133 Sevier
139 Union

04 Ouachita
051 Garland
083 Logan
097 Montgomery
105 Perry
113 Polk
119 Pulaski
125 Saline
127 Scott
131 Sebastian
149 Yell

05 Ozark
005 Baxter
007 Benton
009 Boone
015 Carroll
023 Cleburne
029 Conway
033 Crawford
045 Faulkner
047 Franklin
049 Fulton
063 Independence
065 Izard
071 Johnson
087 Madison
089 Marion
101 Newton
115 Pope
121 Randolph
129 Searcy
135 Sharp
137 Stone
141 Van Buren
143 Washington
145 White

06 California

01 North Coast
015 Del Norte
023 Humboldt
045 Mendocino
097 Sonoma

02 North Interior
035 Lassen
049 Modoc
089 Shasta
093 Siskiyou
105 Trinity

03 Sacramento
007 Butte
011 Colusa
017 El Dorado
021 Glenn
033 Lake
055 Napa
057 Nevada
061 Placer
063 Plumas
067 Sacramento
091 Sierra
101 Sutter
103 Tehama
113 Yolo
115 Yuba

04 Central Coast
001 Alameda
013 Contra Costa
041 Marin
053 Monterey
069 San Benito
075 San Francisco

079 San Luis Obispo
081 San Mateo
083 Santa Barbara
085 Santa Clara
087 Santa Cruz
095 Solano
111 Ventura

05 San Joaquin
003 Alpine
005 Amador
009 Calaveras
019 Fresno
029 Kern
031 Kings
039 Madera
043 Mariposa
047 Merced
051 Mono
077 San Joaquin
099 Stanislaus
107 Tulare
109 Tuolumne

06 Southern
025 Imperial
027 Inyo
037 Los Angeles
059 Orange
065 Riverside
071 San Bernardino
073 San Diego

08 Colorado

01 Northern Front Range
013 Boulder
019 Clear Creek
035 Douglas
039 Elbert
041 El Paso
047 Gilpin
059 Jefferson
065 Lake
069 Larimer
093 Park
119 Teller

02 Southern Front Range
015 Chaffee
023 Costilla
027 Custer
043 Fremont
055 Huerfano
071 Las Animas
101 Pueblo

03 West Central
003 Alamosa
021 Conejos
037 Eagle
049 Grand
051 Gunnison
053 Hinsdale
057 Jackson
079 Mineral
097 Pitkin
105 Rio Grande
107 Routt
109 Saguache
111 San Juan
117 Summit

04 Western
007 Archuleta
029 Delta
033 Dolores
045 Garfield
067 La Plata
077 Mesa
081 Moffat
083 Montezuma
085 Montrose
091 Ouray
103 Rio Blanco
113 San Miguel

05 Eastern
001 Adams
005 Arapahoe
009 Baca
011 Bent
017 Cheyenne
025 Crowley
031 Denver
061 Kiowa
063 Kit Carson
073 Lincoln
075 Logan
087 Morgan
089 Otero
095 Phillips
099 Prowers
115 Sedgwick
121 Washington
123 Weld
125 Yuma

09 Connecticut

01 State
001 Fairfield
003 Hartford
005 Litchfield
007 Middlesex
009 New Haven
011 New London
013 Tolland
015 Windham

10 Delaware

01 State
001 Kent
003 New Castle
005 Sussex

11 District of Columbia

12 Florida

01 Northeastern
001 Alachua
003 Baker
007 Bradford
019 Clay
023 Columbia

029 Dixie
031 Duval
035 Flagler
041 Gilchrist
047 Hamilton
067 Lafayette
075 Levy
079 Madison
083 Marion
089 Nassau
107 Putnam
109 St. Johns
121 Suwannee
123 Taylor
125 Union
127 Volusia

02 Northwestern
005 Bay
013 Calhoun
033 Escambia
037 Franklin
039 Gadsden
045 Gulf
059 Holmes
063 Jackson
065 Jefferson
073 Leon
077 Liberty
091 Okaloosa
113 Santa Rosa
129 Wakulla
131 Walton
133 Washington

03 Central
009 Brevard
017 Citrus
027 DeSoto
049 Hardee
053 Hernando
055 Highlands
057 Hillsborough
061 Indian River
069 Lake
081 Manatee
093 Okeechobee
095 Orange
097 Osceola
101 Pasco
103 Pinellas
105 Polk
111 St. Lucie
115 Sarasota
117 Seminole
119 Sumter

04 Southern
011 Broward
015 Charlotte
021 Collier
025 Dade
043 Glades
051 Hendry
071 Lee
085 Martin
087 Monroe
099 Palm Beach

13 Georgia

01 Southeastern
001 Appling
003 Atkinson
005 Bacon
025 Brantley
029 Bryan
031 Bulloch
039 Camden
043 Candler
049 Charlton
051 Chatham
065 Clinch
069 Coffee
091 Dodge
101 Echols
103 Effingham
107 Emanuel
109 Evans
127 Glynn
161 Jeff Davis
165 Jenkins
167 Johnson
175 Laurens
179 Liberty
183 Long
191 McIntosh
209 Montgomery
229 Pierce
251 Screven
267 Tattnall
271 Telfair
279 Toombs
283 Treutlen
299 Ware
305 Wayne
309 Wheeler

02 Southwestern
007 Baker
017 Ben Hill
019 Berrien
027 Brooks
071 Colquitt
075 Cook
081 Crisp
087 Decatur
093 Dooly
099 Early
131 Grady
155 Irwin
173 Lanier
185 Lowndes
201 Miller
205 Mitchell
253 Seminole
275 Thomas
277 Tift
287 Turner
315 Wilcox
321 Worth

03 Central
009 Baldwin
021 Bibb
023 Bleckley
033 Burke
035 Butts
037 Calhoun
053 Chattahoochee
061 Clay
073 Columbia
079 Crawford
095 Dougherty
125 Glascock
133 Greene
141 Hancock
145 Harris
153 Houston
159 Jasper
163 Jefferson
169 Jones
171 Lamar
177 Lee
181 Lincoln
189 McDuffie
193 Macon
197 Marion
207 Monroe
211 Morgan
215 Muscogee
225 Peach
231 Pike
235 Pulaski
237 Putnam
239 Quitman
243 Randolph
245 Richmond
249 Schley
259 Stewart
261 Sumter
263 Talbot
265 Taliaferro
269 Taylor
273 Terrell
289 Twiggs
293 Upson
301 Warren
303 Washington
307 Webster
317 Wilkes
319 Wilkinson

04 North Central
011 Banks
013 Barrow
045 Carroll
059 Clarke
063 Clayton
067 Cobb
077 Coweta
089 DeKalb
097 Douglas
105 Elbert
113 Fayette
117 Forsyth
119 Franklin
121 Fulton
135 Gwinnett
139 Hall
143 Haralson
147 Hart
149 Heard
151 Henry
157 Jackson
195 Madison
199 Meriwether
217 Newton
219 Oconee
221 Oglethorpe
223 Paulding
233 Polk
247 Rockdale
255 Spalding
285 Troup
297 Walton

05 Northern
015 Bartow
047 Catoosa
055 Chattooga
057 Cherokee
083 Dade
085 Dawson
111 Fannin
115 Floyd
123 Gilmer
129 Gordon
137 Habersham
187 Lumpkin
213 Murray
227 Pickens
241 Rabun
257 Stephens
281 Towns
291 Union
295 Walker
311 White
313 Whitfield

15 Hawaii

01 State
001 Hawaii
003 Honolulu
005 Kalawao
007 Kauai
009 Maui

16 Idaho

01 Northern
009 Benewah
017 Bonner
021 Boundary
035 Clearwater
049 Idaho
055 Kootenai
057 Latah
061 Lewis
069 Nez Perce
079 Shoshone

02 Southeastern
001 Ada
003 Adams
015 Boise

027 Canyon
039 Elmore
045 Gem
073 Owyhee
075 Payette
085 Valley
087 Washington

03 Southwestern
005 Bannock
007 Bear Lake
011 Bingham
013 Blaine
019 Bonneville
023 Butte
025 Camas
029 Caribou
031 Cassia
033 Clark
037 Custer
041 Franklin
043 Fremont
047 Gooding
051 Jefferson
053 Jerome
059 Lemhi
063 Lincoln
065 Madison
067 Minidoka
071 Oneida
077 Power
081 Teton
083 Twin Falls

17 Illinois

01 Southern
003 Alexander
055 Franklin
059 Gallatin
065 Hamilton
069 Hardin
077 Jackson
087 Johnson
127 Massac
145 Perry
151 Pope
153 Pulaski
157 Randolph
165 Saline
181 Union
193 White
199 Williamson

02 Claypan
005 Bond
013 Calhoun
023 Clark
025 Clay
027 Clinton
033 Crawford
035 Cumberland
047 Edwards
049 Effingham
051 Fayette
061 Greene
079 Jasper
081 Jefferson
083 Jersey
101 Lawrence
117 Macoupin
119 Madison
121 Marion
133 Monroe
135 Montgomery
159 Richland
163 St. Clair
173 Shelby
185 Wabash
189 Washington
191 Wayne

03 Prairie
001 Adams
007 Boone
009 Brown
011 Bureau
015 Carroll
017 Cass
019 Champaign
021 Christian
029 Coles
031 Cook
037 DeKalb
039 De Witt
041 Douglas
043 DuPage
045 Edgar
053 Ford
057 Fulton
063 Grundy
067 Hancock
071 Henderson
073 Henry
075 Iroquois
085 Jo Daviess
089 Kane
091 Kankakee
093 Kendall
095 Knox
097 Lake
099 La Salle
103 Lee
105 Livingston
107 Logan
109 McDonough
111 McHenry
113 McLean
115 Macon
123 Marshall
125 Mason
129 Menard
131 Mercer
137 Morgan
139 Moultrie
141 Ogle
143 Peoria
147 Piatt
149 Pike
155 Putnam
161 Rock Island
167 Sangamon
169 Schuyler
171 Scott
175 Stark
177 Stephenson

179 Tazewell
183 Vermilion
187 Warren
195 Whiteside
197 Will
201 Winnebago
203 Woodford

18 Indiana

01 Lower Wabash
021 Clay
027 Daviess
051 Gibson
055 Greene
083 Knox
101 Martin
121 Parke
125 Pike
129 Posey
133 Putnam
153 Sullivan
163 Vanderburgh
165 Vermillion
167 Vigo

02 Knobs
013 Brown
019 Clark
025 Crawford
037 Dubois
043 Floyd
061 Harrison
071 Jackson
093 Lawrence
105 Monroe
109 Morgan
117 Orange
119 Owen
123 Perry
143 Scott
147 Spencer
173 Warrick
175 Washington

03 Upland Flats
029 Dearborn
041 Fayette
047 Franklin
077 Jefferson
079 Jennings
115 Ohio
137 Ripley
155 Switzerland
161 Union

04 Northern
001 Adams
003 Allen
005 Bartholomew
007 Benton
009 Blackford
011 Boone
015 Carroll
017 Cass
023 Clinton
031 Decatur
033 De Kalb
035 Delaware
039 Elkhart
045 Fountain
049 Fulton
053 Grant
057 Hamilton
059 Hancock
063 Hendricks
065 Henry
067 Howard
069 Huntington
073 Jasper
075 Jay
081 Johnson
085 Kosciusko
087 Lagrange
089 Lake
091 La Porte
095 Madison
097 Marion
099 Marshall
103 Miami
107 Montgomery
111 Newton
113 Noble
127 Porter
131 Pulaski
135 Randolph
139 Rush
141 St. Joseph
145 Shelby
149 Starke
151 Steuben
157 Tippecanoe
159 Tipton
169 Wabash
171 Warren
177 Wayne
179 Wells
181 White
183 Whitley

19 Iowa

01 Northeastern
005 Allamakee
011 Benton
013 Black Hawk
017 Bremer
019 Buchanan
023 Butler
031 Cedar
037 Chickasaw
043 Clayton
045 Clinton
055 Delaware
061 Dubuque
065 Fayette
067 Floyd
075 Grundy
089 Howard
097 Jackson
103 Johnson
105 Jones
113 Linn
131 Mitchell
163 Scott
171 Tama
191 Winneshiek

02 Southeastern
007 Appanoose
015 Boone
039 Clarke
049 Dallas
051 Davis
053 Decatur
057 Des Moines
077 Guthrie
079 Hamilton
083 Hardin
087 Henry
095 Iowa
099 Jasper
101 Jefferson
107 Keokuk
111 Lee
115 Louisa
117 Lucas
121 Madison
123 Mahaska
125 Marion
127 Marshall
135 Monroe
139 Muscatine
153 Polk
157 Poweshiek
169 Story
177 Van Buren
179 Wapello
181 Warren
183 Washington
185 Wayne
187 Webster

03 Southwestern
001 Adair
003 Adams
009 Audubon
027 Carroll
029 Cass
047 Crawford
071 Fremont
073 Greene
085 Harrison
129 Mills
133 Monona
137 Montgomery
145 Page
155 Pottawattamie
159 Ringgold
165 Shelby
173 Taylor
175 Union
193 Woodbury

04 Northwestern
021 Buena Vista
025 Calhoun
033 Cerro Gordo
035 Cherokee
041 Clay
059 Dickinson
063 Emmet
069 Franklin
081 Hancock
091 Humboldt
093 Ida
109 Kossuth
119 Lyon
141 O'Brien
143 Osceola
147 Palo Alto
149 Plymouth
151 Pocahontas
161 Sac
167 Sioux
189 Winnebago
195 Worth
197 Wright

20 Kansas

01 Northeastern
005 Atchison
013 Brown
027 Clay
041 Dickinson
043 Doniphan
045 Douglas
059 Franklin
061 Geary
085 Jackson
087 Jefferson
091 Johnson
103 Leavenworth
117 Marshall
121 Miami
131 Nemaha
139 Osage
149 Pottawatomie
161 Riley
177 Shawnee
197 Wabaunsee
201 Washington
209 Wyandotte

02 Southeastern
001 Allen
003 Anderson
011 Bourbon
015 Butler
017 Chase
019 Chautauqua
021 Cherokee
031 Coffey
035 Cowley
037 Crawford
049 Elk
073 Greenwood
099 Labette
107 Linn
111 Lyon
115 Marion
125 Montgomery
127 Morris
133 Neosho
205 Wilson
207 Woodson

03 Western
007 Barber
009 Barton
023 Cheyenne
025 Clark
029 Cloud
033 Comanche

039 Decatur
047 Edwards
051 Ellis
053 Ellsworth
055 Finney
057 Ford
063 Gove
065 Graham
067 Grant
069 Gray
071 Greeley
075 Hamilton
077 Harper
079 Harvey
081 Haskell
083 Hodgeman
089 Jewell
093 Kearny
095 Kingman
097 Kiowa
101 Lane
105 Lincoln
109 Logan
113 McPherson
119 Meade
123 Mitchell
129 Morton
135 Ness
137 Norton
141 Osborne
143 Ottawa
145 Pawnee
147 Phillips
151 Pratt
153 Rawlins
155 Reno
157 Republic
159 Rice
163 Rooks
165 Rush
167 Russell
169 Saline
171 Scott
173 Sedgwick
175 Seward
179 Sheridan
181 Sherman
183 Smith
185 Stafford
187 Stanton
189 Stevens
191 Sumner
193 Thomas
195 Trego
199 Wallace
203 Wichita

21 Kentucky

01 Eastern

071 Floyd
095 Harlan
119 Knott
131 Leslie
133 Letcher
159 Martin
193 Perry
195 Pike

02 Northern Cumberland

019 Boyd
043 Carter
063 Elliott
089 Greenup
115 Johnson
127 Lawrence
135 Lewis
153 Magoffin
165 Menifee
175 Morgan
197 Powell
205 Rowan
237 Wolfe

03 Southern Cumberland

013 Bell
025 Breathitt
051 Clay
065 Estill
109 Jackson
121 Knox
125 Laurel
129 Lee
147 McCreary
189 Owsley
203 Rockcastle
235 Whitley

04 Bluegrass

005 Anderson
011 Bath
015 Boone
017 Bourbon
021 Boyle
023 Bracken
037 Campbell
041 Carroll
049 Clark
067 Fayette
069 Fleming
073 Franklin
077 Gallatin
079 Garrard
081 Grant
097 Harrison
103 Henry
111 Jefferson
113 Jessamine
117 Kenton
137 Lincoln
151 Madison
161 Mason
167 Mercer
173 Montgomery
181 Nicholas
185 Oldham
187 Owen
191 Pendleton
201 Robertson
209 Scott
211 Shelby
215 Spencer
223 Trimble
229 Washington
239 Woodford

05 Pennyroyal
001 Adair
027 Breckinridge
029 Bullitt
045 Casey
053 Clinton
057 Cumberland
085 Grayson
087 Green
091 Hancock
093 Hardin
099 Hart
123 Larue
155 Marion
163 Meade
169 Metcalfe
179 Nelson
199 Pulaski
207 Russell
217 Taylor
231 Wayne

06 Western Coalfield
003 Allen
009 Barren
031 Butler
033 Caldwell
047 Christian
055 Crittenden
059 Daviess
061 Edmonson
101 Henderson
107 Hopkins
141 Logan
149 McLean
171 Monroe
177 Muhlenberg
183 Ohio
213 Simpson
219 Todd
225 Union
227 Warren
233 Webster

07 Western
007 Ballard
035 Calloway
039 Carlisle
075 Fulton
083 Graves
105 Hickman
139 Livingston
143 Lyon
145 McCracken
157 Marshall
221 Trigg

22 Louisiana

01 North Delta
025 Catahoula
029 Concordia
035 East Carroll
041 Franklin
065 Madison
067 Morehouse
083 Richland
107 Tensas
123 West Carroll

02 South Delta
001 Acadia
005 Ascension
007 Assumption
009 Avoyelles
045 Iberia
047 Iberville
055 Lafayette
057 Lafourche
077 Pointe Coupee
089 St. Charles
093 St. James
095 St. John the Baptist
097 St. Landry
099 St. Martin
101 St. Mary
109 Terrebonne
113 Vermilion
121 West Baton Rouge
125 West Feliciana

03 Southwest
003 Allen
011 Beauregard
019 Calcasieu
039 Evangeline
043 Grant
053 Jefferson Davis
059 La Salle
069 Natchitoches
079 Rapides
085 Sabine
115 Vernon

04 Southeast
033 East Baton Rouge
037 East Feliciana
063 Livingston
091 St. Helena
103 St. Tammany
105 Tangipahoa
117 Washington

05 Northwest
013 Bienville
015 Bossier
017 Caddo
021 Caldwell
027 Claiborne
031 De Soto
049 Jackson
061 Lincoln
073 Ouachita
081 Red River
111 Union
119 Webster
127 Winn

Unsampled parishes
023 Cameron
051 Jefferson
071 Orleans
075 Plaquemines
087 St. Bernard

23 Maine

01 Washington
029 Washington

02 Aroostook
003 Aroostook

03 Penobscot
019 Penobscot

04 Hancock
009 Hancock

05 Piscataquis
021 Piscataquis

06 Capitol Region
011 Kennebec
013 Knox
015 Lincoln
027 Waldo

07 Somerset
025 Somerset

08 Casco Bay
001 Androscoggin
005 Cumberland
023 Sagadahoc
031 York

09 Western Maine
007 Franklin
017 Oxford

24 Maryland

02 North Central
003 Anne Arundel
005 Baltimore
011 Caroline
013 Carroll
015 Cecil
021 Frederick
025 Harford
027 Howard
029 Kent
031 Montgomery
033 Prince George's
035 Queen Anne's
041 Talbot
043 Washington
510 Baltimore city

03 Southern
009 Calvert
017 Charles
037 St. Mary's

04 Lower Eastern Shore
019 Dorchester
039 Somerset
045 Wicomico
047 Worcester

05 Western
001 Allegany
023 Garrett

25 Massachusetts

01 State
001 Barnstable
003 Berkshire
005 Bristol
007 Dukes
009 Essex
011 Franklin
013 Hampden
015 Hampshire
017 Middlesex
019 Nantucket
021 Norfolk
023 Plymouth
025 Suffolk
027 Worcester

26 Michigan

01 Eastern Upper Peninsula
003 Alger
033 Chippewa
041 Delta
095 Luce
097 Mackinac
109 Menominee
153 Schoolcraft

02 Western Upper Peninsula
013 Baraga
043 Dickinson
053 Gogebic
061 Houghton
071 Iron
083 Keweenaw
103 Marquette
131 Ontonagon

03 Northern Lower Peninsula
001 Alcona
007 Alpena
009 Antrim
011 Arenac
017 Bay
019 Benzie
029 Charlevoix
031 Cheboygan
035 Clare
039 Crawford
047 Emmet
051 Gladwin
055 Grand Traverse
069 Iosco
073 Isabella
079 Kalkaska
085 Lake
089 Leelanau
101 Manistee
105 Mason
107 Mecosta
111 Midland
113 Missaukee
119 Montmorency
123 Newaygo
127 Oceana
129 Ogemaw
133 Osceola
135 Oscoda

137 Otsego
141 Presque Isle
143 Roscommon
165 Wexford

04 Southern Lower Peninsula
005 Allegan
015 Barry
021 Berrien
023 Branch
025 Calhoun
027 Cass
037 Clinton
045 Eaton
049 Genesee
057 Gratiot
059 Hillsdale
063 Huron
065 Ingham
067 Ionia
075 Jackson
077 Kalamazoo
081 Kent
087 Lapeer
091 Lenawee
093 Livingston
099 Macomb
115 Monroe
117 Montcalm
121 Muskegon
125 Oakland
139 Ottawa
145 Saginaw
147 St. Clair
149 St. Joseph
151 Sanilac
155 Shiawassee
157 Tuscola
159 Van Buren
161 Washtenaw
163 Wayne

27 Minnesota

01 Aspen-Birch
017 Carlton
031 Cook
071 Koochiching
075 Lake
137 St. Louis

02 Northern Pine
001 Aitkin
005 Becker
007 Beltrami
021 Cass
029 Clearwater
035 Crow Wing
057 Hubbard
061 Itasca
077 Lake of the Woods
087 Mahnomen
135 Roseau
159 Wadena

03 Central Hardwood
003 Anoka
009 Benton
019 Carver
025 Chisago
037 Dakota
041 Douglas
045 Fillmore
049 Goodhue
053 Hennepin
055 Houston
059 Isanti
065 Kanabec
079 Le Sueur
095 Mille Lacs
097 Morrison
109 Olmsted
111 Otter Tail
115 Pine
123 Ramsey
131 Rice
139 Scott
141 Sherburne
145 Stearns
153 Todd
157 Wabasha
163 Washington
169 Winona
171 Wright

04 Prairie
011 Big Stone
013 Blue Earth
015 Brown
023 Chippewa
027 Clay
033 Cottonwood
039 Dodge
043 Faribault
047 Freeborn
051 Grant
063 Jackson
067 Kandiyohi
069 Kittson
073 Lac qui Parle
081 Lincoln
083 Lyon
085 McLeod
089 Marshall
091 Martin
093 Meeker
099 Mower
101 Murray
103 Nicollet
105 Nobles
107 Norman
113 Pennington
117 Pipestone
119 Polk
121 Pope
125 Red Lake
127 Redwood
129 Renville
133 Rock
143 Sibley
147 Steele
149 Stevens

151 Swift
155 Traverse
161 Waseca
165 Watonwan
167 Wilkin
173 Yellow Medicine

28 Mississippi

01 Delta
011 Bolivar
027 Coahoma
051 Holmes
053 Humphreys
055 Issaquena
083 Leflore
119 Quitman
125 Sharkey
133 Sunflower
135 Tallahatchie
143 Tunica
149 Warren
151 Washington
163 Yazoo

02 North
003 Alcorn
009 Benton
013 Calhoun
015 Carroll
017 Chickasaw
019 Choctaw
025 Clay
033 DeSoto
043 Grenada
057 Itawamba
071 Lafayette
081 Lee
087 Lowndes
093 Marshall
095 Monroe
097 Montgomery
105 Oktibbeha
107 Panola
115 Pontotoc
117 Prentiss
137 Tate
139 Tippah
141 Tishomingo
145 Union
155 Webster
161 Yalobusha

03 Central
007 Attala
023 Clarke
061 Jasper
069 Kemper
075 Lauderdale
079 Leake
099 Neshoba
101 Newton
103 Noxubee
121 Rankin
123 Scott
127 Simpson
129 Smith
159 Winston

04 South
031 Covington
035 Forrest
039 George
041 Greene
045 Hancock
047 Harrison
059 Jackson
065 Jefferson Davis
067 Jones
073 Lamar
077 Lawrence
091 Marion
109 Pearl River
111 Perry
131 Stone
147 Walthall
153 Wayne

05 Southwest
001 Adams
005 Amite
021 Claiborne
029 Copiah
037 Franklin
049 Hinds
063 Jefferson
085 Lincoln
089 Madison
113 Pike
157 Wilkinson

29 Missouri

01 Eastern Ozarks
017 Bollinger
023 Butler
035 Carter
055 Crawford
065 Dent
093 Iron
123 Madison
149 Oregon
179 Reynolds
181 Ripley
187 St. Francois
203 Shannon
221 Washington
223 Wayne

02 Southwestern Ozarks
009 Barry
043 Christian
067 Douglas
091 Howell
119 McDonald
145 Newton
153 Ozark
209 Stone
213 Taney
215 Texas
225 Webster
229 Wright

03 Northwestern Ozarks
015 Benton
029 Camden

039 Cedar
059 Dallas
085 Hickory
105 Laclede
125 Maries
131 Miller
141 Morgan
161 Phelps
167 Polk
169 Pulaski
185 St. Clair

04 Prairie
001 Adair
003 Andrew
005 Atchison
007 Audrain
011 Barton
013 Bates
021 Buchanan
025 Caldwell
033 Carroll
037 Cass
041 Chariton
045 Clark
047 Clay
049 Clinton
053 Cooper
057 Dade
061 Daviess
063 DeKalb
075 Gentry
077 Greene
079 Grundy
081 Harrison
083 Henry
087 Holt
095 Jackson
097 Jasper
101 Johnson
103 Knox
107 Lafayette
109 Lawrence
111 Lewis
113 Lincoln
115 Linn
117 Livingston
121 Macon
127 Marion
129 Mercer
137 Monroe
147 Nodaway
159 Pettis
163 Pike
165 Platte
171 Putnam
173 Ralls
175 Randolph
177 Ray
195 Saline
197 Schuyler
199 Scotland
205 Shelby
211 Sullivan
217 Vernon
227 Worth

05 Riverborder
019 Boone
027 Callaway
031 Cape Girardeau
051 Cole
069 Dunklin
071 Franklin
073 Gasconade
089 Howard
099 Jefferson
133 Mississippi
135 Moniteau
139 Montgomery
143 New Madrid
151 Osage
155 Pemiscot
157 Perry
183 St. Charles
186 Ste. Genevieve
189 St. Louis
201 Scott
207 Stoddard
219 Warren
510 St. Louis city

30 Montana

01 Northwestern
029 Flathead
047 Lake
053 Lincoln
089 Sanders

02 Eastern
003 Big Horn
005 Blaine
009 Carbon
011 Carter
015 Chouteau
017 Custer
019 Daniels
021 Dawson
025 Fallon
027 Fergus
033 Garfield
035 Glacier
037 Golden Valley
041 Hill
051 Liberty
055 McCone
065 Musselshell
069 Petroleum
071 Phillips
073 Pondera
075 Powder River
079 Prairie
083 Richland
085 Roosevelt
087 Rosebud
091 Sheridan
095 Stillwater
097 Sweet Grass
099 Teton
101 Toole
103 Treasure
105 Valley
109 Wibaux

111 Yellowstone
113 Yellowstone National Park

03 Western
039 Granite
061 Mineral
063 Missoula
081 Ravalli

04 West Central
007 Broadwater
013 Cascade
043 Jefferson
045 Judith Basin
049 Lewis and Clark
059 Meagher
077 Powell
107 Wheatland

05 Southwestern
001 Beaverhead
023 Deer Lodge
031 Gallatin
057 Madison
067 Park
093 Silver Bow

31 Nebraska

01 Eastern
001 Adams
011 Boone
019 Buffalo
021 Burt
023 Butler
025 Cass
027 Cedar
035 Clay
037 Colfax
039 Cuming
041 Custer
043 Dakota
047 Dawson
051 Dixon
053 Dodge
055 Douglas
059 Fillmore
061 Franklin
063 Frontier
065 Furnas
067 Gage
073 Gosper
077 Greeley
079 Hall
081 Hamilton
083 Harlan
087 Hitchcock
093 Howard
095 Jefferson
097 Johnson
099 Kearney
109 Lancaster
119 Madison
121 Merrick
125 Nance
127 Nemaha
129 Nuckolls
131 Otoe
133 Pawnee
137 Phelps
139 Pierce
141 Platte
143 Polk
145 Red Willow
147 Richardson
151 Saline
153 Sarpy
155 Saunders
159 Seward
163 Sherman
167 Stanton
169 Thayer
173 Thurston
175 Valley
177 Washington
179 Wayne
181 Webster
185 York

02 Western
003 Antelope
005 Arthur
007 Banner
009 Blaine
013 Box Butte
015 Boyd
017 Brown
029 Chase
031 Cherry
033 Cheyenne
045 Dawes
049 Deuel
057 Dundy
069 Garden
071 Garfield
075 Grant
085 Hayes
089 Holt
091 Hooker
101 Keith
103 Keya Paha
105 Kimball
107 Knox
111 Lincoln
113 Logan
115 Loup
117 McPherson
123 Morrill
135 Perkins
149 Rock
157 Scotts Bluff
161 Sheridan
165 Sioux
171 Thomas
183 Wheeler

32 Nevada

01 Nevada
001 Churchill
003 Clark
005 Douglas
007 Elko
009 Esmeralda

011 Eureka
013 Humboldt
015 Lander
017 Lincoln
019 Lyon
021 Mineral
023 Nye
027 Pershing
029 Storey
031 Washoe
033 White Pine
510 Carson City

33 New Hampshire

02 Northern
003 Carroll
007 Coos
009 Grafton

03 Southern
001 Belknap
005 Cheshire
011 Hillsborough
013 Merrimack
015 Rockingham
017 Strafford
019 Sullivan

34 New Jersey

01 State
001 Atlantic
003 Bergen
005 Burlington
007 Camden
009 Cape May
011 Cumberland
013 Essex
015 Gloucester
017 Hudson
019 Hunterdon
021 Mercer
023 Middlesex
025 Monmouth
027 Morris
029 Ocean
031 Passaic
033 Salem
035 Somerset
037 Sussex
039 Union
041 Warren

35 New Mexico

01 Northwestern
001 Bernalillo
006 Cibola
028 Los Alamos
031 McKinley
039 Rio Arriba
043 Sandoval
045 San Juan
049 Santa Fe
055 Taos
061 Valencia

02 Northeastern
007 Colfax
019 Guadalupe
021 Harding
033 Mora
037 Quay
047 San Miguel
057 Torrance
059 Union

03 Southwestern
003 Catron
013 Dona Ana
017 Grant
023 Hidalgo
029 Luna
051 Sierra
053 Socorro

04 Southeastern
005 Chaves
009 Curry
011 DeBaca
015 Eddy
025 Lea
027 Lincoln
035 Otero
041 Roosevelt

36 New York

01 Adirondack
019 Clinton
033 Franklin
045 Jefferson
087 Rockland
089 St. Lawrence

02 Lake Plain
011 Cayuga
029 Erie
037 Genesee
051 Livingston
053 Madison
055 Monroe
063 Niagara
067 Onondaga
069 Ontario
073 Orleans
075 Oswego
099 Seneca
117 Wayne
121 Wyoming
123 Yates

03 Western Adirondack
035 Fulton
043 Herkimer
049 Lewis
065 Oneida

04 Eastern Adirondack
031 Essex
041 Hamilton
113 Warren

05 Southwest Highlands
003 Allegany
009 Cattaraugus
013 Chautauqua
101 Steuben

06 South-Central Highlands
007 Broome
015 Chemung
017 Chenango
023 Cortland
025 Delaware
077 Otsego
097 Schuyler
107 Tioga
109 Tompkins

07 Capitol District
001 Albany
021 Columbia
057 Montgomery
083 Rensselaer
091 Saratoga
093 Schenectady
115 Washington

08 Catskill-Lower Hudson
005 Bronx
027 Dutchess
039 Greene
047 Kings
059 Nassau
061 New York
071 Orange
079 Putnam
081 Queens
085 Richmond
095 Schoharie
103 Suffolk
105 Sullivan
111 Ulster
119 Westchester

37 North Carolina

01 Southern Coastal Plain
017 Bladen
019 Brunswick
047 Columbus
051 Cumberland
061 Duplin
079 Greene
085 Harnett
093 Hoke
101 Johnston
103 Jones
105 Lee
107 Lenoir
125 Moore
129 New Hanover
133 Onslow
141 Pender
153 Richmond
155 Robeson
163 Sampson
165 Scotland
191 Wayne

02 Northern Coastal Plain
013 Beaufort
015 Bertie
029 Camden
031 Carteret
041 Chowan
049 Craven
053 Currituck
055 Dare
065 Edgecombe
073 Gates
083 Halifax
091 Hertford
095 Hyde
117 Martin
127 Nash
131 Northampton
137 Pamlico
139 Pasquotank
143 Perquimans
147 Pitt
177 Tyrrell
187 Washington
195 Wilson

03 Piedmont
001 Alamance
003 Alexander
007 Anson
025 Cabarrus
033 Caswell
035 Catawba
037 Chatham
045 Cleveland
057 Davidson
059 Davie
063 Durham
067 Forsyth
069 Franklin
071 Gaston
077 Granville
081 Guilford
097 Iredell
109 Lincoln
119 Mecklenburg
123 Montgomery
135 Orange
145 Person
149 Polk
151 Randolph
157 Rockingham
159 Rowan
161 Rutherford
167 Stanly
169 Stokes
171 Surry
179 Union
181 Vance
183 Wake
185 Warren
197 Yadkin

04 Mountains
005 Alleghany
009 Ashe
011 Avery

021 Buncombe
023 Burke
027 Caldwell
039 Cherokee
043 Clay
075 Graham
087 Haywood
089 Henderson
099 Jackson
111 McDowell
113 Macon
115 Madison
121 Mitchell
173 Swain
175 Transylvania
189 Watauga
193 Wilkes
199 Yancey

38 North Dakota

01 Eastern

001 Adams
003 Barnes
005 Benson
007 Billings
009 Bottineau
011 Bowman
013 Burke
015 Burleigh
017 Cass
019 Cavalier
021 Dickey
023 Divide
025 Dunn
027 Eddy
029 Emmons
031 Foster
033 Golden Valley
035 Grand Forks
037 Grant
039 Griggs
041 Hettinger
043 Kidder
045 LaMoure
047 Logan
049 McHenry
051 McIntosh
053 McKenzie
055 McLean
057 Mercer
059 Morton
061 Mountrail
063 Nelson
065 Oliver
067 Pembina
069 Pierce
071 Ramsey
073 Ransom
075 Renville
077 Richland
079 Rolette
081 Sargent
083 Sheridan
085 Sioux
087 Slope
089 Stark
091 Steele
093 Stutsman
095 Towner
097 Traill
099 Walsh
101 Ward
103 Wells
105 Williams

39 Ohio

01 South-Central

001 Adams
015 Brown
025 Clermont
053 Gallia
071 Highland
079 Jackson
087 Lawrence
131 Pike
141 Ross
145 Scioto

02 Southeastern

009 Athens
073 Hocking
105 Meigs
115 Morgan
127 Perry
163 Vinton
167 Washington

03 East-Central

013 Belmont
019 Carroll
031 Coshocton
059 Guernsey
067 Harrison
075 Holmes
081 Jefferson
111 Monroe
119 Muskingum
121 Noble
157 Tuscarawas

04 Northeastern

005 Ashland
007 Ashtabula
029 Columbiana
035 Cuyahoga
043 Erie
055 Geauga
077 Huron
085 Lake
093 Lorain
099 Mahoning
103 Medina
133 Portage
139 Richland
151 Stark
153 Summit
155 Trumbull
169 Wayne

05 Southwestern

017 Butler
023 Clark
027 Clinton

037 Darke
045 Fairfield
047 Fayette
049 Franklin
057 Greene
061 Hamilton
089 Licking
097 Madison
109 Miami
113 Montgomery
129 Pickaway
135 Preble
165 Warren

06 Northwestern
003 Allen
011 Auglaize
021 Champaign
033 Crawford
039 Defiance
041 Delaware
051 Fulton
063 Hancock
065 Hardin
069 Henry
083 Knox
091 Logan
095 Lucas
101 Marion
107 Mercer
117 Morrow
123 Ottawa
125 Paulding
137 Putnam
143 Sandusky
147 Seneca
149 Shelby
159 Union
161 Van Wert
171 Williams
173 Wood
175 Wyandot

40 Oklahoma

01 Southeast
005 Atoka
013 Bryan
023 Choctaw
029 Coal
061 Haskell
077 Latimer
079 Le Flore
089 McCurtain
121 Pittsburg
127 Pushmataha

02 Northeast
001 Adair
021 Cherokee
041 Delaware
091 McIntosh
097 Mayes
101 Muskogee
115 Ottawa
135 Sequoyah

Unsampled counties
003 Alfalfa
007 Beaver
009 Beckham
011 Blaine
015 Caddo
017 Canadian
019 Carter
025 Cimarron
027 Cleveland
031 Comanche
033 Cotton
035 Craig
037 Creek
039 Custer
043 Dewey
045 Ellis
047 Garfield
049 Garvin
051 Grady
053 Grant
055 Greer
057 Harmon
059 Harper
063 Hughes
065 Jackson
067 Jefferson
069 Johnston
071 Kay
073 Kingfisher
075 Kiowa
081 Lincoln
083 Logan
085 Love
087 McClain
093 Major
095 Marshall
099 Murray
103 Noble
105 Nowata
107 Okfuskee
109 Oklahoma
111 Okmulgee
113 Osage
117 Pawnee
119 Payne
123 Pontotoc
125 Pottawatomie
129 Roger Mills
131 Rogers
133 Seminole
137 Stephens
139 Texas
141 Tillman
143 Tulsa
145 Wagoner
147 Washington
149 Washita
151 Woods
153 Woodward

41 Oregon

00 Northwest
005 Clackamas
007 Clatsop
009 Columbia
027 Hood River
047 Marion

051 Multnomah
053 Polk
057 Tillamook
067 Washington
071 Yamhill

01 West Central
003 Benton
039 Lane
041 Lincoln
043 Linn

02 Southwest
011 Coos
015 Curry
019 Douglas
029 Jackson
033 Josephine

03 Central
013 Crook
017 Deschutes
021 Gilliam
031 Jefferson
035 Klamath
037 Lake
055 Sherman
065 Wasco
069 Wheeler

04 Blue Mountains
001 Baker
023 Grant
025 Harney
045 Malheur
049 Morrow
059 Umatilla
061 Union
063 Wallowa

42 Pennsylvania

00 South Central
043 Dauphin
055 Franklin
057 Fulton
061 Huntingdon
067 Juniata
087 Mifflin
099 Perry
109 Snyder
119 Union

05 Western
003 Allegheny
005 Armstrong
007 Beaver
019 Butler
039 Crawford
049 Erie
059 Greene
063 Indiana
073 Lawrence
085 Mercer
125 Washington
129 Westmoreland

06 North Central/Allegheny
023 Cameron
027 Centre
031 Clarion
033 Clearfield
035 Clinton
047 Elk
053 Forest
065 Jefferson
081 Lycoming
083 Mc Kean
105 Potter
113 Sullivan
117 Tioga
121 Venango
123 Warren

07 Southwestern
009 Bedford
013 Blair
021 Cambria
051 Fayette
111 Somerset

08 Northeastern/Pocono
015 Bradford
025 Carbon
037 Columbia
069 Lackawanna
079 Luzerne
089 Monroe
093 Montour
097 Northumberland
103 Pike
107 Schuylkill
115 Susquehanna
127 Wayne
131 Wyoming

09 Southeastern
001 Adams
011 Berks
017 Bucks
029 Chester
041 Cumberland
045 Delaware
071 Lancaster
075 Lebanon
077 Lehigh
091 Montgomery
095 Northampton
101 Philadelphia
133 York

44 Rhode Island

01 State
001 Bristol
003 Kent
005 Newport
007 Providence
009 Washington

45 South Carolina

01 Southern Coastal Plain
003 Aiken
005 Allendale
009 Bamberg

011 Barnwell
013 Beaufort
017 Calhoun
029 Colleton
035 Dorchester
049 Hampton
053 Jasper
063 Lexington
075 Orangeburg

02 Northern Coastal Plain
015 Berkeley
019 Charleston
025 Chesterfield
027 Clarendon
031 Darlington
033 Dillon
041 Florence
043 Georgetown
051 Horry
055 Kershaw
061 Lee
067 Marion
069 Marlboro
079 Richland
085 Sumter
089 Williamsburg

03 Piedmont
001 Abbeville
007 Anderson
021 Cherokee
023 Chester
037 Edgefield
039 Fairfield
045 Greenville
047 Greenwood
057 Lancaster
059 Laurens
065 McCormick
071 Newberry
073 Oconee
077 Pickens
081 Saluda
083 Spartanburg
087 Union
091 York

46 South Dakota

01 Eastern
003 Aurora
005 Beadle
007 Bennett
009 Bon Homme
011 Brookings
013 Brown
015 Brule
017 Buffalo
021 Campbell
023 Charles Mix
025 Clark
027 Clay
029 Codington
031 Corson
035 Davison
037 Day
039 Deuel
041 Dewey
043 Douglas
045 Edmunds
049 Faulk
051 Grant
053 Gregory
055 Haakon
057 Hamlin
059 Hand
061 Hanson
065 Hughes
067 Hutchinson
069 Hyde
071 Jackson
073 Jerauld
075 Jones
077 Kingsbury
079 Lake
083 Lincoln
085 Lyman
087 McCook
089 McPherson
091 Marshall
095 Mellette
097 Miner
099 Minnehaha
101 Moody
105 Perkins
107 Potter
109 Roberts
111 Sanborn
115 Spink
117 Stanley
119 Sully
121 Todd
123 Tripp
125 Turner
127 Union
129 Walworth
135 Yankton
137 Ziebach

02 Western
019 Butte
033 Custer
047 Fall River
063 Harding
081 Lawrence
093 Meade
103 Pennington
113 Shannon

47 Tennessee

01 West
017 Carroll
023 Chester
033 Crockett
045 Dyer
047 Fayette
053 Gibson
069 Hardeman
075 Haywood
077 Henderson
079 Henry
095 Lake

097 Lauderdale
109 McNairy
113 Madison
131 Obion
157 Shelby
167 Tipton
183 Weakley

02 West Central
005 Benton
039 Decatur
071 Hardin
081 Hickman
083 Houston
085 Humphreys
099 Lawrence
101 Lewis
135 Perry
161 Stewart
181 Wayne

03 Central
003 Bedford
015 Cannon
021 Cheatham
027 Clay
031 Coffee
037 Davidson
041 DeKalb
043 Dickson
055 Giles
087 Jackson
103 Lincoln
111 Macon
117 Marshall
119 Maury
125 Montgomery
127 Moore
147 Robertson
149 Rutherford
159 Smith
165 Sumner
169 Trousdale
187 Williamson
189 Wilson

04 Plateau
007 Bledsoe
013 Campbell
035 Cumberland
049 Fentress
051 Franklin
061 Grundy
115 Marion
129 Morgan
133 Overton
137 Pickett
141 Putnam
151 Scott
153 Sequatchie
175 Van Buren
177 Warren
185 White

05 East
001 Anderson
009 Blount
011 Bradley
019 Carter
025 Claiborne
029 Cocke
057 Grainger
059 Greene
063 Hamblen
065 Hamilton
067 Hancock
073 Hawkins
089 Jefferson
091 Johnson
093 Knox
105 Loudon
107 McMinn
121 Meigs
123 Monroe
139 Polk
143 Rhea
145 Roane
155 Sevier
163 Sullivan
171 Unicoi
173 Union
179 Washington

48 Texas

01 Southeast
005 Angelina
071 Chambers
185 Grimes
199 Hardin
201 Harris
225 Houston
241 Jasper
245 Jefferson
289 Leon
291 Liberty
313 Madison
339 Montgomery
351 Newton
361 Orange
373 Polk
403 Sabine
405 San Augustine
407 San Jacinto
455 Trinity
457 Tyler
471 Walker
473 Waller

02 Northeast
001 Anderson
037 Bowie
063 Camp
067 Cass
073 Cherokee
159 Franklin
183 Gregg
203 Harrison
213 Henderson
315 Marion
343 Morris
347 Nacogdoches
365 Panola
387 Red River
401 Rusk
419 Shelby
423 Smith
449 Titus
459 Upshur
467 Van Zandt
499 Wood

Unsampled counties

003 Andrews
007 Aransas
009 Archer
011 Armstrong
013 Atascosa
015 Austin
017 Bailey
019 Bandera
021 Bastrop
023 Baylor
025 Bee
027 Bell
029 Bexar
031 Blanco
033 Borden
035 Bosque
039 Brazoria
041 Brazos
043 Brewster
045 Briscoe
047 Brooks
049 Brown
051 Burleson
053 Burnet
055 Caldwell
057 Calhoun
059 Callahan
061 Cameron
065 Carson
069 Castro
075 Childress
077 Clay
079 Cochran
081 Coke
083 Coleman
085 Collin
087 Collingsworth
089 Colorado
091 Comal
093 Comanche
095 Concho
097 Cooke
099 Coryell
101 Cottle
103 Crane
105 Crockett
107 Crosby
109 Culberson
111 Dallam
113 Dallas
115 Dawson
117 Deaf Smith
119 Delta
121 Denton
123 DeWitt
125 Dickens
127 Dimmit
129 Donley
131 Duval
133 Eastland
135 Ector
137 Edwards
139 Ellis
141 El Paso
143 Erath
145 Falls
147 Fannin
149 Fayette
151 Fisher
153 Floyd
155 Foard
157 Fort Bend
161 Freestone
163 Frio
165 Gaines
167 Galveston
169 Garza
171 Gillespie
173 Glasscock
175 Goliad
177 Gonzales
179 Gray
181 Grayson
187 Guadalupe
189 Hale
191 Hall
193 Hamilton
195 Hansford
197 Hardeman
205 Hartley
207 Haskell
209 Hays
211 Hemphill
215 Hidalgo
217 Hill
219 Hockley
221 Hood
223 Hopkins
227 Howard
229 Hudspeth
231 Hunt
233 Hutchinson
235 Irion
237 Jack
239 Jackson
243 Jeff Davis
247 Jim Hogg
249 Jim Wells
251 Johnson
253 Jones
255 Karnes
257 Kaufman
259 Kendall
261 Kenedy
263 Kent
265 Kerr
267 Kimble
269 King
271 Kinney
273 Kleberg
275 Knox
277 Lamar
279 Lamb
281 Lampasas
283 La Salle
285 Lavaca
287 Lee
293 Limestone
295 Lipscomb
297 Live Oak
299 Llano
301 Loving
303 Lubbock
305 Lynn

307 McCulloch
309 McLennan
311 McMullen
317 Martin
319 Mason
321 Matagorda
323 Maverick
325 Medina
327 Menard
329 Midland
331 Milam
333 Mills
335 Mitchell
337 Montague
341 Moore
345 Motley
349 Navarro
353 Nolan
355 Nueces
357 Ochiltree
359 Oldham
363 Palo Pinto
367 Parker
369 Parmer
371 Pecos
375 Potter
377 Presidio
379 Rains
381 Randall
383 Reagan
385 Real
389 Reeves
391 Refugio
393 Roberts
395 Robertson
397 Rockwall
399 Runnels
409 San Patricio
411 San Saba
413 Schleicher
415 Scurry
417 Shackelford
421 Sherman
425 Somervell
427 Starr
429 Stephens
431 Sterling
433 Stonewall
435 Sutton
437 Swisher
439 Tarrant
441 Taylor
443 Terrell
445 Terry
447 Throckmorton
451 Tom Green
453 Travis
461 Upton
463 Uvalde
465 Val Verde
469 Victoria
475 Ward
477 Washington
479 Webb
481 Wharton
483 Wheeler
485 Wichita
487 Wilbarger
489 Willacy
491 Williamson
493 Wilson
495 Winkler
497 Wise
501 Yoakum
503 Young
505 Zapata
507 Zavala

49 Utah

01 Northern
003 Box Elder
005 Cache
011 Davis
029 Morgan
033 Rich
035 Salt Lake
043 Summit
045 Tooele
049 Utah
051 Wasatch
057 Weber

02 Uinta
009 Daggett
013 Duchesne
047 Uintah

03 Central
023 Juab
027 Millard
031 Piute
039 Sanpete
041 Sevier
055 Wayne

04 Eastern
007 Carbon
015 Emery
019 Grand
037 San Juan

05 Southwestern
001 Beaver
017 Garfield
021 Iron
025 Kane
053 Washington

50 Vermont

02 Northern
005 Caledonia
009 Essex
011 Franklin
013 Grand Isle
015 Lamoille
017 Orange
019 Orleans
023 Washington

03 Southern
001 Addison
003 Bennington
007 Chittenden

021 Rutland
025 Windham
027 Windsor

51 Virginia

01 Coastal Plain
001 Accomack
025 Brunswick
033 Caroline
036 Charles City
041 Chesterfield
053 Dinwiddie
057 Essex
073 Gloucester
081 Greensville
085 Hanover
087 Henrico
093 Isle of Wight
095 James City
097 King and Queen
099 King George
101 King William
103 Lancaster
115 Mathews
119 Middlesex
127 New Kent
131 Northampton
133 Northumberland
149 Prince George
159 Richmond
175 Southampton
181 Surry
183 Sussex
193 Westmoreland
199 York
550 Chesapeake city
650 Hampton city
700 Newport News city
800 Suffolk city
810 Virginia Beach city

02 Southern Piedmont
007 Amelia
011 Appomattox
019 Bedford
029 Buckingham
031 Campbell
037 Charlotte
049 Cumberland
067 Franklin
083 Halifax
089 Henry
111 Lunenburg
117 Mecklenburg
135 Nottoway
141 Patrick
143 Pittsylvania
145 Powhatan
147 Prince Edward

03 Northern Piedmont
003 Albemarle
009 Amherst
013 Arlington
047 Culpeper
059 Fairfax
061 Fauquier
065 Fluvanna
075 Goochland
079 Greene
107 Loudoun
109 Louisa
113 Madison
125 Nelson
137 Orange
153 Prince William
157 Rappahannock
177 Spotsylvania
179 Stafford

04 Northern Mountains
005 Alleghany
015 Augusta
017 Bath
023 Botetourt
043 Clarke
045 Craig
069 Frederick
091 Highland
139 Page
161 Roanoke
163 Rockbridge
165 Rockingham
171 Shenandoah
187 Warren

05 Southern Mountains
021 Bland
027 Buchanan
035 Carroll
051 Dickenson
063 Floyd
071 Giles
077 Grayson
105 Lee
121 Montgomery
155 Pulaski
167 Russell
169 Scott
173 Smyth
185 Tazewell
191 Washington
195 Wise
197 Wythe

Unsampled cities
510 Alexandria city
515 Bedford city
520 Bristol city
530 Buena Vista city
540 Charlottesville city
560 Clifton Forge city
570 Colonial Heights city
580 Covington city
590 Danville city
595 Emporia city
600 Fairfax city
610 Falls Church city
620 Franklin city
630 Fredericksburg city
640 Galax city
660 Harrisonburg city
670 Hopewell city
678 Lexington city
680 Lynchburg city

683 Manassas city
685 Manassas Park city
690 Martinsville city
710 Norfolk city
720 Norton city
730 Petersburg city
735 Poquoson city
740 Portsmouth city
750 Radford city
760 Richmond city
770 Roanoke city
775 Salem city
780 South Boston city
790 Staunton city
820 Waynesboro city
830 Williamsburg city
840 Winchester city

53 Washington

05 Puget Sound
029 Island
033 King
035 Kitsap
053 Pierce
055 San Juan
057 Skagit
061 Snohomish
073 Whatcom

06 Olympic Peninsula
009 Clallam
027 Grays Harbor
031 Jefferson
045 Mason
067 Thurston

07 Southwest
011 Clark
015 Cowlitz
041 Lewis
049 Pacific
059 Skamania
069 Wahkiakum

08 Central
001 Adams
003 Asotin
005 Benton
013 Columbia
019 Ferry
021 Franklin
023 Garfield
025 Grant
043 Lincoln
051 Pend Oreille
063 Spokane
065 Stevens
071 Walla Walla
075 Whitman

09 Inland Empire
007 Chelan
017 Douglas
037 Kittitas
039 Klickitat
047 Okanogan
077 Yakima

54 West Virginia

02 Northeastern
001 Barbour
003 Berkeley
007 Braxton
023 Grant
027 Hampshire
031 Hardy
033 Harrison
037 Jefferson
041 Lewis
057 Mineral
065 Morgan
071 Pendleton
075 Pocahontas
077 Preston
083 Randolph
091 Taylor
093 Tucker
097 Upshur
101 Webster

03 Southern
005 Boone
015 Clay
019 Fayette
025 Greenbrier
039 Kanawha
045 Logan
047 McDowell
055 Mercer
059 Mingo
063 Monroe
067 Nicholas
081 Raleigh
089 Summers
109 Wyoming

04 Northwestern
009 Brooke
011 Cabell
013 Calhoun
017 Doddridge
021 Gilmer
029 Hancock
035 Jackson
043 Lincoln
049 Marion
051 Marshall
053 Mason
061 Monongalia
069 Ohio
073 Pleasants
079 Putnam
085 Ritchie
087 Roane
095 Tyler
099 Wayne
103 Wetzel
105 Wirt
107 Wood

55 Wisconsin

01 Northeastern
037 Florence
041 Forest

067 Langlade
069 Lincoln
075 Marinette
078 Menominee
083 Oconto
085 Oneida
115 Shawano
125 Vilas

02 Northwestern
003 Ashland
005 Barron
007 Bayfield
013 Burnett
031 Douglas
051 Iron
095 Polk
099 Price
107 Rusk
113 Sawyer
119 Taylor
129 Washburn

03 Central
001 Adams
017 Chippewa
019 Clark
035 Eau Claire
053 Jackson
057 Juneau
073 Marathon
077 Marquette
081 Monroe
097 Portage
135 Waupaca
137 Waushara
141 Wood

04 Southwestern
011 Buffalo
023 Crawford
033 Dunn
043 Grant
049 Iowa
063 La Crosse
065 Lafayette
091 Pepin
093 Pierce
103 Richland
109 St. Croix
111 Sauk
121 Trempealeau
123 Vernon

05 Southeastern
009 Brown
015 Calumet
021 Columbia
025 Dane
027 Dodge
029 Door
039 Fond du Lac
045 Green
047 Green Lake
055 Jefferson
059 Kenosha
061 Kewaunee
071 Manitowoc
079 Milwaukee
087 Outagamie
089 Ozaukee
101 Racine
105 Rock
117 Sheboygan
127 Walworth
131 Washington
133 Waukesha
139 Winnebago

56 Wyoming

01 Western
013 Fremont
017 Hot Springs
023 Lincoln
029 Park
035 Sublette
037 Sweetwater
039 Teton
041 Uinta

02 Central and Southeastern
001 Albany
003 Big Horn
007 Carbon
009 Converse
015 Goshen
019 Johnson
021 Laramie
025 Natrona
027 Niobrara
031 Platte
033 Sheridan
043 Washakie

03 Northeastern
005 Campbell
011 Crook
045 Weston

72 Puerto Rico

01 Puerto Rico
001 Adjuntas
003 Aguada
005 Aguadilla
007 Aguas Buenas
009 Aibonito
011 Anasco
013 Arecibo
015 Arroyo
017 Barceloneta
019 Barranquitas
021 Bayamon
023 Cabo Rojo
025 Caguas
027 Camuy
029 Canovanas
031 Carolina
033 Catano
035 Cayey
037 Ceiba
039 Ciales
041 Cidra
043 Coamo
045 Comerio

047 Corozal
049 Culebra
051 Dorado
053 Fajardo
054 Florida
055 Guanica
057 Guayama
059 Guayanilla
061 Guaynabo
063 Gurabo
065 Hatillo
067 Hormigueros
069 Humacao
071 Isabela
073 Jayuya
075 Juana Diaz
077 Juncos
079 Lajas
081 Lares
083 Las Marias
085 Las Piedras
087 Loiza
089 Luquillo
091 Manati
093 Maricao
095 Maunabo
097 Mayaguez
099 Moca
101 Morovis
103 Naguabo
105 Naranjito
107 Orocovis
109 Patillas
111 Penuelas
113 Ponce
115 Quebradillas
117 Rincon
119 Rio Grande
121 Sabana Grande
123 Salinas
125 San German
127 San Juan
129 San Lorenzo
131 San Sebastian
133 Santa Isabel
135 Toa Alta
137 Toa Baja
139 Trujillo Alto
141 Utuado
143 Vega Alta
145 Vega Baja
147 Vieques
149 Villalba
151 Yabucoa
153 Yauco

FOREST TYPE CODES AND NAMES

Code	Forest type/type group
100	**White / Red / Jack Pine Group**
101	Jack pine
102	Red pine
103	Eastern white pine
104	White pine / hemlock
105	Eastern hemlock
120	**Spruce / Fir Group**
121	Balsam fir
122	White spruce
123	Red spruce
124	Red spruce / balsam fir
125	Black spruce
126	Tamarack
127	Northern white-cedar
140	**Longleaf / Slash Pine Group**
141	Longleaf pine
142	Slash pine
160	**Loblolly / Shortleaf Pine Group**
161	Loblolly pine
162	Shortleaf pine
163	Virginia pine
164	Sand pine
165	Table Mountain pine
166	Pond pine
167	Pitch pine
168	Spruce pine
180	**Pinyon / Juniper Group**
181	Eastern redcedar
182	Rocky Mountain juniper
183	Western juniper
184	Juniper woodland
185	Pinyon juniper woodland

Code	Forest type/type group
200	**Douglas-fir Group**
201	Douglas-fir
202	Port-Orford-cedar
220	**Ponderosa Pine Group**
221	Ponderosa pine
222	Incense-cedar
223	Jeffrey pine / Coulter pine / bigcone Douglas-fir
224	Sugar pine
240	**Western White Pine Group**
241	Western white pine
260	**Fir / Spruce / Mountain Hemlock Group**
261	White fir
262	Red fir
263	Noble fir
264	Pacific silver fir
265	Engelmann spruce
266	Engelmann spruce / subalpine fir
267	Grand fir
268	Subalpine fir
269	Blue spruce
270	Mountain hemlock
271	Alaska-yellow-cedar
280	**Lodgepole Pine Group**
281	Lodgepole pine
300	**Hemlock / Sitka Spruce Group**
301	Western hemlock
304	Western redcedar
305	Sitka spruce
320	**Western Larch Group**
321	Western larch

Code	Forest type/type group
340	**Redwood Group**
341	Redwood
342	Giant sequoia
360	**Other Western Softwoods Group**
361	Knobcone pine
362	Southwest white pine
363	Bishop pine
364	Monterey pine
365	Foxtail pine / bristlecone pine
366	Limber pine
367	Whitebark pine
368	Misc. western softwoods
370	**California Mixed Conifer Group**
371	California mixed conifer
380	**Exotic Softwoods Group**
381	Scotch pine
382	Australian pine
383	Other exotic softwoods
400	**Oak / Pine Group**
401	White pine / red oak / white ash
402	Eastern redcedar / hardwood
403	Longleaf pine / oak
404	Shortleaf pine / oak
405	Virginia pine / southern red oak
406	Loblolly pine / hardwood
407	Slash pine / hardwood
409	Other pine / hardwood
500	**Oak / Hickory Group**
501	Post oak / blackjack oak
502	Chestnut oak
503	White oak / red oak / hickory
504	White oak
505	Northern red oak
506	Yellow-poplar / white oak / red oak
507	Sassafras / persimmon
508	Sweetgum / yellow-poplar
509	Bur oak
510	Scarlet oak

Code	Forest type/type group
511	Yellow-poplar
512	Black walnut
513	Black locust
514	Southern scrub oak
515	Chestnut oak / black oak / scarlet oak
519	Red maple / oak
520	Mixed upland hardwoods
600	**Oak / Gum / Cypress Group**
601	Swamp chestnut oak / cherrybark oak
602	Sweetgum / Nuttall oak / willow oak
605	Overcup oak / water hickory
606	Atlantic white-cedar
607	Baldcypress / water tupelo
608	Sweetbay / swamp tupelo / red maple
700	**Elm / Ash / Cottonwood Group**
701	Black ash / American elm / red maple
702	River birch / sycamore
703	Cottonwood
704	Willow
705	Sycamore / pecan / American elm
706	Sugarberry / hackberry / elm / green ash
708	Red maple / lowland
709	Cottonwood / willow
722	Oregon ash
800	**Maple / Beech / Birch Group**
801	Sugar maple / beech / yellow birch
802	Black cherry
803	Cherry / ash / yellow-poplar
805	Hard maple / basswood
807	Elm / ash / locust
809	Red maple / upland
900	**Aspen / Birch Group**
901	Aspen
902	Paper birch
904	Balsam poplar
910	**Alder / Maple Group**
911	Red alder
912	Bigleaf maple

Code	Forest type/type group
920	**Western Oak Group**
921	Gray pine
922	California black oak
923	Oregon white oak
924	Blue oak
925	Deciduous oak woodland
931	Coast live oak
932	Canyon live oak / interior live oak
940	**Tanoak / Laurel Group**
941	Tanoak
942	Califonia laurel
943	Giant chinkapin
950	**Other Western Hardwoods Group**
951	Pacific madrone
952	Mesquite woodland
953	Cercocarpus woodland
954	Intermountain maple woodland
955	Misc. western hardwood woodlands
980	**Tropical Hardwoods Group**
981	Sable palm
982	Mangrove
990	**Exotic Hardwoods Group**
991	Paulownia
992	Melaluca
993	Eucalyptus
995	Other exotic hardwoods
999	Non-stocked

NATIONAL FOREST CODES AND NAMES

Region	Code	National Forest/ Grassland/Area
Region 1	102	Beaverhead
	103	Bitterroot
	104	Idaho Panhandle
	105	Clearwater
	108	Custer
	109	Deerlodge
	110	Flathead
	111	Gallatin
	112	Helena
	114	Kootenai
	115	Lewis and Clark
	116	Lolo
	117	Nez Perce
	120	Cedar River NGL (National Grassland)
	121	Little Missouri NGL
	122	Sheyenne NGL
	124	Grand River NGL
	199	Other NFS areas
Region 2	202	Bighorn
	203	Black Hills
	204	Grand Mesa-Uncompahgre-Gunnison
	206	Medicine Bow
	207	Nebraska
	209	Rio Grande
	210	Arapaho-Roosevelt
	211	Routt
	212	Pike and San Isabel
	213	San Juan
	214	Shoshone
	215	White River
	217	Cimarron NGL
	218	Commanche NGL
	219	Pawnee NGL
	220	Oglala NGL
	221	Buffalo Gap NGL
	222	Fort Pierre NGL
	223	Thunder Basin NGL
	299	Other NFS areas
Region 3	301	Apache-Sitgreaves
	302	Carson
	303	Cibola
	304	Coconino
	305	Coronado
	306	Gila
	307	Kaibab
	308	Lincoln
	309	Prescott
	310	Santa Fe
	312	Tonto
	399	Other NFS areas
Region 4	401	Ashley
	402	Boise
	403	Bridger-Teton
	405	Caribou
	406	Challis
	407	Dixie
	408	Fishlake
	409	Humboldt
	410	Manti-La Sal
	412	Payette
	413	Salmon
	414	Sawtooth
	415	Targhee
	417	Toiyabe
	418	Uinta

Region	Code	National Forest/ Grassland/Area
	419	Wasatch-Cache
	420	Desert Range Experiment Station
	499	Other NFS areas
Region 5	501	Angeles
	502	Cleveland
	503	Eldorado
	504	Inyo
	505	Klamath
	506	Lassen
	507	Los Padres
	508	Mendocino
	509	Modoc
	510	Six Rivers
	511	Plumas
	512	San Bernardino
	513	Sequoia
	514	Shasta-Trinity
	515	Sierra
	516	Stanislaus
	517	Tahoe
	519	Lake Tahoe Basin
	599	Other NFS areas
Region 6	601	Deschutes
	602	Fremont
	603	Gifford Pinchot
	604	Malheur
	605	Mt. Baker-Snoqualmie
	606	Mt. Hood
	607	Ochoco
	608	Okanogan
	609	Olympic
	610	Rogue River
	611	Siskiyou
	612	Siuslaw
	614	Umatilla
	615	Umpqua
	616	Wallowa-Whitman
	617	Wenatchee
	618	Willamette
	620	Winema
	621	Colville
	699	Other NFS areas
Region 8	801	NFS in Alabama
	802	Daniel Boone
	803	Chattahoochee-Oconee
	804	Cherokee
	805	NFS in Florida
	806	Kisatchie
	807	NFS in Mississippi
	808	George Washington
	809	Ouachita
	810	Ozark and St. Francis
	811	NFS in North Carolina
	812	Francis Marion-Sumter
	813	NFS in Texas
	814	Jefferson
	816	Caribbean
	899	Other NFS areas
Region 9	902	Chequamegon
	903	Chippewa
	904	Huron-Manistee
	905	Mark Twain
	906	Nicolet
	907	Ottawa
	908	Shawnee
	909	Superior
	910	Hiawatha
	911	Hoosier
	918	Wayne
	919	Allegheny
	920	Green Mountain
	921	Monongahela
	922	White Mountain
	999	Other NFS areas
Region 10	002	Tongass-Stikine Area
	003	Tongass-Chatham Area
	004	Chugach
	005	Tongass-Ketchikan Area
	099	Other NFS areas

TREE SPECIES CODES, NAMES, AND OCCURRENCES

This appendix shows how FIA units group trees of various species into 4 major species groups (MAJGRP) and 48 species groups (SPGRPCD). The major species groups are: 1) pine, 2) other softwoods, 3) soft hardwoods, and 4) hard hardwoods. The names for the 48 species groups (SPGRPCD) can be found in Appendix G. Species found in both an eastern FIA unit (NC, NE, SO) and a western FIA unit (PNW, RM) have two species group codes—one used by the eastern units and one used by the western units.

The last five columns of this table show which species each FIA unit has measured in previous inventories. An X in a column indicates that the project measures the diameter at breast height for this species. An R indicates that the diameter is measured at the root collar.

The list is ordered by species code (SPP). Codes 1-299 are softwood species. Codes 300-999 are hardwood species. Within each group, species are generally ordered alphabetically by genus and species.

						Species occurrence by FIA unit				
SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	NC	NE	PNW	RM	SO
10	fir spp.	*Abies*	*spp.*	6	2		X			X
11	Pacific silver fir	*Abies*	*amabilis*	12	2			X		
12	balsam fir	*Abies*	*balsamea*	6	2	X	X			X
14	Santa Lucia fir	*Abies*	*bracteata*	12	2			X		
15	white fir	*Abies*	*concolor*	12	2			X	X	
16	Fraser fir	*Abies*	*fraseri*	9	2					X
17	grand fir	*Abies*	*grandis*	12	2			X	X	
18	corkbark fir	*Abies*	*lasiocarpa var. arizonica*	12	2				X	
19	subalpine fir	*Abies*	*lasiocarpa*	12	2			X	X	
20	California red fir	*Abies*	*magnifica*	12	2			X	X	
21	Shasta red fir	*Abies*	*magnifica var. shastensis*	12	2			X		
22	noble fir	*Abies*	*procera*	12	2			X		
41	Port-Orford-cedar	*Chamaecyparis*	*lawsoniana*	24	2			X		
42	Alaska yellow-cedar	*Chamaecyparis*	*nootkatensis*	24	2			X		
43	Atlantic white-cedar	*Chamaecyparis*	*thyoides*	9	2		X			X
50	cypress	*Cupressus*	*spp.*	24	2			X	X	
51	Arizona cypress	*Cupressus*	*arizonica*	23	2			X	X	
52	Baker cypress	*Cupressus*	*bakeri*	24	2					
53	Tecate cypress	*Cupressus*	*guadalupensis var. forbesii*	24	2					
54	Monterey cypress	*Cupressus*	*macrocarpa*	24	2					
55	Sargent cypress	*Cupressus*	*sargentii*	24	2					
57	redcedar / juniper	*Juniperus*	*spp.*	23	2		X			X
58	Pinchot juniper	*Juniperus*	*pinchotii*	23	2				R	
59	redberry juniper	*Juniperus*	*erythrocarpa*	23	2				R	

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
61	Ashe juniper	*Juniperus*	*ashei*	9	2					
62	California juniper	*Juniperus*	*californica*	23	2			X	R	
63	alligator juniper	*Juniperus*	*deppeana*	23	2				R	
64	western juniper	*Juniperus*	*occidentalis*	23	2			X	R	
65	Utah juniper	*Juniperus*	*osteosperma*	23	2			X	R	
66	Rocky Mountain juniper	*Juniperus*	*scopulorum*	9East,23West	2	X		X	R	
67	southern redcedar	*Juniperus*	*silicicola*	9	2					X
68	eastern redcedar	*Juniperus*	*virginiana*	9	2	X	X			X
69	oneseed juniper	*Juniperus*	*monosperma*	23	2				R	
70	larch (introduced)	*Larix*	*spp.*	9	2	X	X			
71	tamarack (native)	*Larix*	*laricina*	9East,24West	2	X	X			
72	subalpine larch	*Larix*	*lyallii*	24	2			X	X	
73	western larch	*Larix*	*occidentalis*	19	2			X	X	
81	incense-cedar	*Calocedrus*	*decurrens*	20	2			X	X	
90	spruce spp.	*Picea*	*spp.*	6	2		X			X
91	Norway spruce	*Picea*	*abies*	9	2	X	X			
92	Brewer spruce	*Picea*	*breweriana*	18	2			X		
93	Engelmann spruce	*Picea*	*engelmannii*	9East,18West	2	X		X	X	
94	white spruce	*Picea*	*glauca*	6East,18West	2	X	X	X	X	
95	black spruce	*Picea*	*mariana*	6East,23West	2	X	X	X		X
96	blue spruce	*Picea*	*pungens*	9East,18West	2	X	X		X	
97	red spruce	*Picea*	*rubens*	6	2		X			X
98	Sitka spruce	*Picea*	*sitchensis*	17	2			X		
101	whitebark pine	*Pinus*	*albicaulis*	24	1			X	X	
102	bristlecone pine	*Pinus*	*aristata*	24	1			X	X	
103	knobcone pine	*Pinus*	*attenuata*	24	1			X		
104	foxtail pine	*Pinus*	*balfouriana*	24	1			X		
105	jack pine	*Pinus*	*banksiana*	5	1	X	X			
106	common pinyon	*Pinus*	*edulis*	23	1			X	R	
107	sand pine	*Pinus*	*clausa*	3	1					X
108	lodgepole pine	*Pinus*	*contorta*	21	1			X	X	
109	Coulter pine	*Pinus*	*coulteri*	24	1			X		
110	shortleaf pine	*Pinus*	*echinata*	2	1	X	X			X
111	slash pine	*Pinus*	*elliottii*	1	1					X
112	Apache pine	*Pinus*	*engelmannii*	24	1				X	
113	limber pine	*Pinus*	*flexilis*	24	1			X	X	
114	southwestern white pine	*Pinus*	*strobiformus*	24	1				X	
115	spruce pine	*Pinus*	*glabra*	3	1					X
116	Jeffrey pine	*Pinus*	*jeffreyi*	11	1			X	X	
117	sugar pine	*Pinus*	*lambertiana*	14	1			X	X	
118	Chihuahua pine	*Pinus*	*leiophylla var. chihuahuana*	24	1				X	
119	western white pine	*Pinus*	*monticola*	15	1			X	X	
120	bishop pine	*Pinus*	*muricata*	24	1			X		
121	longleaf pine	*Pinus*	*palustris*	1	1					X

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
122	ponderosa pine	*Pinus*	*ponderosa*	9East,11West	1	X		X	X	X
123	Table Mountain pine	*Pinus*	*pungens*	3	1		X			X
124	Monterey pine	*Pinus*	*radiata*	24	1			X		
125	red pine	*Pinus*	*resinosa*	4	1	X	X			
126	pitch pine	*Pinus*	*rigida*	3	1		X			X
127	gray pine	*Pinus*	*sabiniana*	24	1			X		
128	pond pine	*Pinus*	*serotina*	3	1		X			X
129	eastern white pine	*Pinus*	*strobus*	4	1	X	X			X
130	Scotch pine	*Pinus*	*sylvestris*	3East,13West	1	X	X	X		
131	loblolly pine	*Pinus*	*taeda*	2	1	X	X			X
132	Virginia pine	*Pinus*	*virginiana*	3	1	X	X			X
133	singleleaf pinyon	*Pinus*	*monophylla*	23	1			X	R	
134	border pinyon	*Pinus*	*discolor*	23	1				R	
135	Arizona pine	*Pinus*	*ponderosa var. arizonica*	11	1				X	
136	Austrian pine	*Pinus*	*nigra*	9	1	X	X			
137	Washoe pine	*Pinus*	*washoensis*	24	1				X	
138	four-needle pinyon	*Pinus*	*quadrifolia*	24	1					
139	Torrey pine	*Pinus*	*torreyana*	24	1					
140	Mexican pinyon pine	*Pinus*	*cembroides*	24	1				R	
142	Great Basin bristlecone pine	*Pinus*	*longaeva*	24	1				R	
143	Arizona pinyon pine	*Pinus*	*monophylla var. fallax*	24	1				R	
201	bigcone Douglas-fir	*Pseudotsuga*	*macrocarpa*	24	2			X		
202	Douglas-fir	*Pseudotsuga*	*menziesii*	9East,10West	2	X	X	X	X	
211	redwood	*Sequoia*	*sempervirens*	16	2			X		
212	giant sequoia	*Sequoiadendron*	*giganteum*	24	2			X		
221	baldcypress	*Taxodium*	*distichum*	8	2	X	X			X
222	pondcypress	*Taxodium*	*distichum var. nutans*	8	2					X
231	Pacific yew	*Taxus*	*brevifolia*	23	2			X	R	
241	northern white-cedar	*Thuja*	*occidentalis*	9	2	X	X			X
242	western redcedar	*Thuja*	*plicata*	22	2			X	X	
251	California torrey (nutmeg)	*Torreya*	*californica*	24	2			X		
252	Florida torreya	*Torreya*	*taxifolia*	9	2					X
260	hemlock spp.	*Tsuga*	*spp.*	7	2		X			X
261	eastern hemlock	*Tsuga*	*canadensis*	7	2	X	X			X
262	Carolina hemlock	*Tsuga*	*caroliniana*	7	2					X
263	western hemlock	*Tsuga*	*heterophylla*	13	2			X	X	
264	mountain hemlock	*Tsuga*	*mertensiana*	24	2			X	X	
270	Australian-pine	*Casuarina*	*spp.*	9East,24West	2					X
300	acacia	*Acacia*	*spp.*	41East,48West	3	X		X	R	
310	maple spp.	*Acer*	*spp.*	31	4		X			
311	Florida maple	*Acer*	*barbatum*	31	4					X
312	bigleaf maple	*Acer*	*macrophyllum*	47	3			X		
313	boxelder	*Acer*	*negundo*	41	3	X	X	X	R	X

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
314	black maple	*Acer*	*nigrum*	31	4	X	X			X
315	striped maple	*Acer*	*pensylvanicum*	43	3	X	X			X
316	red maple	*Acer*	*rubrum*	32	3	X	X			X
317	silver maple	*Acer*	*saccharinum*	32	3	X	X			X
318	sugar maple	*Acer*	*saccharum*	31	4	X	X			X
319	mountain maple	*Acer*	*spicatum*	43	4	X	X			X
320	Norway maple	*Acer*	*platanoides*	31	4		X			
321	Rocky Mountain maple	*Acer*	*glabrum*	43East,48West	4	X		X	R	
322	bigtooth maple	*Acer*	*grandidentatum*	48	4			X	R	
323	chalk maple	*Acer*	*leucoderme*	31	4					
330	buckeye, horsechestnut	*Aesculus*	*spp.*	41East,47West	3	X	X	X		X
331	Ohio buckeye	*Aesculus*	*glabra*	41	3	X	X			X
332	yellow buckeye	*Aesculus*	*octandra*	41	3	X	X			X
333	California buckeye	*Aesculus*	*californica*	41	3			X		
334	Texas buckeye	*Aesculus*	*glabra var. arguta*	41	3					
341	ailanthus	*Ailanthus*	*altissima*	43East,47West	4	X	X			X
345	mimosa/silktree	*Albizia*	*julibrissin*	43	3	X				
351	red alder	*Alnus*	*rubra*	45	3			X		
352	white alder	*Alnus*	*rhombifolia*	47	3			X		
355	European alder	*Alnus*	*glutinosa*	41East,47West	3					
356	serviceberry	*Amelanchier*	*spp.*	43	4		X			X
361	Pacific madrone	*Arbutus*	*menziesii*	47	4			X		
367	pawpaw	*Asimina*	*triloba*	43	3		X			
370	birch spp.	*Betula*	*spp.*	41	4		X			X
371	yellow birch	*Betula*	*alleghaniensis*	30	4	X	X			X
372	sweet birch	*Betula*	*lenta*	42	4	X	X			X
373	river birch	*Betula*	*nigra*	41	3	X	X			X
374	water birch	*Betula*	*occidentalis*	41East,47West	3			X		
375	paper birch	*Betula*	*papyrifera*	41East,47West	3	X	X		X	
376	western paper birch	*Betula*	*papyrifera var. commutata*	47	3			X		
378	northwestern paper birch	*Betula*	*papyrifera var. subcordata*	47	3			X		
379	gray birch	*Betula*	*populifolia*	41	3	X	X			X
381	chittamwood, gum bumelia	*Bumelia*	*lanuginosa*	43	4	X				X
391	American hornbeam, musclewood	*Carpinus*	*caroliniana*	43	4	X	X			X
400	hickory spp.	*Carya*	*spp.*	29	4		X			X
401	water hickory	*Carya*	*aquatica*	29	4	X				X
402	bitternut hickory	*Carya*	*cordiformis*	29	4	X	X			
403	pignut hickory	*Carya*	*glabra*	29	4	X	X			
404	pecan	*Carya*	*illinoensis*	29	4	X	X			X
405	shellbark hickory	*Carya*	*laciniosa*	29	4	X	X			
406	nutmeg hickory	*Carya*	*myristiciformis*	29	4					X
407	shagbark hickory	*Carya*	*ovata*	29	4	X	X			

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
408	black hickory	*Carya*	*texana*	29	4	X				
409	mockernut hickory	*Carya*	*tomentosa*	29	4	X	X			
410	sand hickory	*Carya*	*pallida*	29	4					X
421	American chestnut	*Castanea*	*dentata*	43	3	X	X			X
422	Allegheny chinkapin	*Castanea*	*pumila*	41	3					X
423	Ozark chinkapin	*Castanea*	*ozarkensis*	43	3	X				
430	chinkapin	*Castanopsis*	*spp.*	43	4					X
431	giant chinkapin, golden chinkapin	*Castanopsis*	*chrysophylla*	47	3			X		
450	catalpa spp.	*Catalpa*	*spp.*	42	4		X			X
451	southern catalpa	*Catalpa*	*bignonioides*	43	4					X
452	northern catalpa	*Catalpa*	*speciosa*	41	3	X	X			
460	hackberry spp.	*Celtis*	*spp.*	41	3		X			X
461	sugarberry	*Celtis*	*laevigata*	41	3	X	X			X
462	hackberry	*Celtis*	*occidentalis*	41	3	X	X			X
463	netleaf hackberry	*Celtis*	*reticulata*	41	3	X				
471	eastern redbud	*Cercis*	*canadensis*	43	3	X	X			X
475	curlleaf mountain-mahogany	*Cercocarpus*	*ledifolius*	48	4			X	R	
481	yellowwood	*Cladrastis*	*kentukea*	43	4	X				
491	flowering dogwood	*Cornus*	*florida*	42	4	X	X			X
492	Pacific dogwood	*Cornus*	*nuttallii*	47	4			X		
500	hawthorn	*Crataegus*	*spp.*	43	4	X	X			X
501	cockspur hawthorn	*Crataegus*	*crus-galli*	43	4					
502	downy hawthorn	*Crataegus*	*mollis*	43	4					
510	eucalyptus	*Eucalyptus*	*spp.*	47	4			X		
521	common persimmon	*Diospyros*	*virginiana*	42	4	X	X			X
531	American beech	*Fagus*	*grandifolia*	33	4	X	X			X
540	ash spp.	*Fraxinus*	*spp.*	36	3		X			X
541	white ash	*Fraxinus*	*americana*	36	4	X	X			X
542	Oregon ash	*Fraxinus*	*latifolia*	47	4			X		
543	black ash	*Fraxinus*	*nigra*	36	3	X	X			X
544	green ash	*Fraxinus*	*pennsylvanica*	36	4	X	X			X
545	pumpkin ash	*Fraxinus*	*profunda*	36	3	X	X			X
546	blue ash	*Fraxinus*	*quadrangulata*	36	4	X	X			X
547	velvet ash	*Fraxinus*	*velutina*	47	4					
548	Carolina ash	*Fraxinus*	*caroliniana*	36	4					X
551	waterlocust	*Gleditsia*	*aquatica*	42	4	X				X
552	honeylocust	*Gleditsia*	*triacanthos*	42	4	X	X			X
555	loblolly-bay	*Gordonia*	*lasianthus*	41	3					X
571	Kentucky coffeetree	*Gymnocladus*	*dioicus*	42	4	X	X			X
580	silverbell	*Halesia*	*spp.*	41	3					X
591	American holly	*Ilex*	*opaca*	42	4		X			X
600	walnut spp.	*Juglans*	*spp.*	47	4		X	X		

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
601	butternut	*Juglans*	*cinerea*	41	3	X	X			X
602	black walnut	*Juglans*	*nigra*	40	4	X	X			X
603	California black walnut	*Juglans*	*hindsii*	47	4					
604	southern California black walnut	*Juglans*	*californica*	47	4					
605	Texas walnut	*Juglans*	*microcarpa*	41East,47West	4					
611	sweetgum	*Liquidambar*	*styraciflua*	34	3	X	X			X
621	yellow-poplar	*Liriodendron*	*tulipifera*	39	3	X	X			X
631	tanoak	*Lithocarpus*	*densiflorus*	47	4			X		
641	Osage-orange	*Maclura*	*pomifera*	43	4	X	X			X
650	magnolia spp.	*Magnolia*	*spp.*	41	3		X			
651	cucumbertree	*Magnolia*	*acuminata*	41	3	X	X			X
652	southern magnolia	*Magnolia*	*grandiflora*	41	3					X
653	sweetbay	*Magnolia*	*virginiana*	41	3		X			X
654	bigleaf magnolia	*Magnolia*	*macrophylla*	43	4					X
655	mountain magnolia	*Magnolia*	*fraseri*	41	3					X
660	apple spp.	*Malus*	*spp.*	43	4	X	X	X		X
661	Oregon crab apple	*Malus*	*fusca*	47	4					
680	mulberry spp.	*Morus*	*spp.*	42	4		X			X
681	white mulberry	*Morus*	*alba*	42	4	X	X			X
682	red mulberry	*Morus*	*rubra*	42	4	X	X			X
691	water tupelo	*Nyssa*	*aquatica*	35	3	X				X
692	Ogeechee tupelo	*Nyssa*	*ogeche*	43	4					X
693	blackgum	*Nyssa*	*sylvatica*	35	3	X	X			X
694	swamp tupelo	*Nyssa*	*sylvatica var. biflora*	35	3	X	X			X
701	eastern hophornbeam	*Ostrya*	*virginiana*	43	4	X	X			X
711	sourwood	*Oxydendrum*	*arboreum*	43	4		X			X
712	paulownia, empress-tree	*Paulownia*	*tomentosa*	41	3		X			X
721	redbay	*Persea*	*borbonia*	41	3					X
722	water-elm, planertree	*Planera*	*aquatica*	43	3					X
730	California sycamore	*Platanus*	*racemosa*	47	3			X		
731	sycamore	*Platanus*	*occidentallis*	41	3	X	X			X
740	cottonwood and poplar spp.	*Populus*	*spp.*	37East,44West	3		X		X	X
741	balsam poplar	*Populus*	*balsamifera*	37East,44West	3	X	X		X	
742	eastern cottonwood	*Populus*	*deltoides*	37	3	X	X		X	
743	bigtooth aspen	*Populus*	*grandidentata*	37	3	X	X			
744	swamp cottonwood	*Populus*	*heterophylla*	37	3	X	X			
745	plains cottonwood	*Populus*	*deltoides spp. monilifera*	37East,44West	3	X			X	
746	quaking aspen	*Populus*	*tremuloides*	37East,44West	3	X	X	X	X	
747	black cottonwood	*Populus*	*trichocarpa*	37East,44West	4			X	X	
748	Fremont cottonwood, Rio Grande cottonwood	*Populus*	*fremontii, deltoides spp. wislizeni*	37East,44West	4			X	X	
749	narrowleaf cottonwood	*Populus*	*angustifolia*	37East,44West	3	X			X	
752	silver poplar	*Populus*	*alba*	37	3	X				

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
755	mesquite	*Prosopis*	*spp.*	48	4				R	X
756	western honey mesquite	*Prosopis*	*glandulosa var . torreyana*	48	4				R	
757	velvet mesquite	*Prosopis*	*velutina*	48	4				R	
758	screwbean mesquite	*Prosopis*	*pubescens*	48	4				R	
760	cherry and plum spp.	*Prunus*	*spp.*	43	4		X	X	R	X
761	pin cherry	*Prunus*	*pensylvanica*	43	3	X	X			
762	black cherry	*Prunus*	*serotina*	41	3	X	X			X
763	chokecherry	*Prunus*	*virginiana*	43	4	X	X			
765	Canada plum	*Prunus*	*nigra*	43	4	X				
766	wild plum	*Prunus*	*americana*	43	4	X				
768	bitter cherry	*Prunus*	*emarginata*	47	4				R	
800	oak spp. — deciduous	*Quercus*	*spp.*	48	4		X		R	
801	coast live oak	*Quercus*	*agrifolia*	48	4			X		
802	white oak	*Quercus*	*alba*	25	4	X	X			X
803	Arizona white oak	*Quercus*	*arizonica*	48	4				R	
803	and gray oak	*Quercus*	*grisea*	48	4				R	
804	swamp white oak	*Quercus*	*bicolor*	25	4	X	X			X
805	canyon live oak	*Quercus*	*chrysolepsis*	46	4			X		
806	scarlet oak	*Quercus*	*coccinea*	28	4	X	X			X
807	blue oak	*Quercus*	*douglasii*	46	4			X		
808	Durand oak	*Quercus*	*durandii*	25	4					X
809	northern pin oak	*Quercus*	*ellipsoidalis*	28	4	X	X			
810	Emory oak	*Quercus*	*emoryi*	48	4				R	
811	Engelmann oak	*Quercus*	*engelmannii*	46	4			X		
812	southern red oak	*Quercus*	*falcata var. falcata*	28	4	X	X			X
813	cherrybark oak	*Quercus*	*falcata var. pagodifolia*	26	4	X	X			X
814	Gambel oak	*Quercus*	*gambelii*	48	4				R	
815	Oregon white oak	*Quercus*	*garryana*	46	4			X		
816	bear oak, scrub oak	*Quercus*	*ilicifolia*	43	4		X			X
817	shingle oak	*Quercus*	*imbricaria*	28	4	X	X			X
818	California black oak	*Quercus*	*kelloggii*	46	4			X		
819	turkey oak	*Quercus*	*laevis*	43	4					X
820	laurel oak	*Quercus*	*laurifolia*	28	4		X			X
821	California white oak	*Quercus*	*lobata*	46	4			X		
822	overcup oak	*Quercus*	*lyrata*	27	4	X	X			X
823	bur oak	*Quercus*	*macrocarpa*	25	4	X	X			X
824	blackjack oak	*Quercus*	*marilandica*	28	4	X	X			X
825	swamp chestnut oak	*Quercus*	*michauxii*	25	4	X	X			X
826	chinkapin oak	*Quercus*	*muehlenbergii*	25East,48West	4	X	X		R	X
827	water oak	*Quercus*	*nigra*	28	4		X			X
828	Nuttall oak	*Quercus*	*nuttallii*	28	4	X				X
829	Mexican blue oak	*Quercus*	*oblongifolia*	48	4				R	
830	pin oak	*Quercus*	*palustris*	28	4	X	X			X
831	willow oak	*Quercus*	*phellos*	28	4	X	X			X
832	chestnut oak	*Quercus*	*prinus*	27	4	X	X			X

(Appendix F continued on next page)

(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
833	northern red oak	*Quercus*	*rubra*	26	4	X	X			X
834	Shumard oak	*Quercus*	*shumardii*	26	4	X	X			X
835	post oak	*Quercus*	*stellata*	27	4	X	X			X
836	Delta post oak	*Quercus*	*stellata var. mississippiensis*	27	4					X
837	black oak	*Quercus*	*velutina*	28	4	X	X			X
838	live oak	*Quercus*	*virginiana*	27	4					X
839	interior live oak	*Quercus*	*wislizeni*	43	4			X		
840	dwarf post oak	*Quercus*	*stellata var. margaretta*	27	4					
841	dwarf live oak	*Quercus*	*minima*	22	4					
842	bluejack oak	*Quercus*	*incana*	43	4					X
843	silverleaf oak	*Quercus*	*hypoleucoildes*	48	4				R	
844	Oglethorpe oak	*Quercus*	*oglethorpensis*	27	4					X
845	dwarf chinkapin oak	*Quercus*	*prinoides*	43	4	X				
850	oak — evergreen	*Quercus*	*spp.*	48	4				R	
899	scrub oak	*Quercus*	*spp.*	42East,47West	4					X
901	black locust	*Robinia*	*pseudoacacia*	42East,47West	4	X	X	X		X
902	New Mexico locust	*Robinia*	*neomexicana*	48	4			X	R	
911	palmetto spp.	*Sabal*	*spp.*	41East,47West	3					X
919	western soapberry	*Sapindus*	*drummondii*	43	4	X				
920	willow	*Salix*	*spp.*	48	3		X	X		X
921	peachleaf willow	*Salix*	*amygdaloides*	43	3	X				
922	black willow	*Salix*	*nigra*	41	3	X	X			
927	white willow	*Salix*	*alba*	41	3	X				
931	sassafras	*Sassafras*	*albidum*	41	3	X	X			X
935	American mountain-ash	*Sorbus*	*americana*	43	4	X	X			X
936	European mountain-ash	*Sorbus*	*aucuparia*	43	4		X			
950	basswood spp.	*Tilia*	*spp.*	38	3		X			X
951	American basswood	*Tilia*	*americana*	38	3	X	X			X
952	white basswood	*Tilia*	*heterophylla*	38	3	X	X			X
953	Carolina basswood	*Tilia*	*americana var. caroliniana*	38	3					X
970	elm spp.	*Ulmus*	*spp.*	41	3		X			
971	winged elm	*Ulmus*	*alata*	41	4	X	X			X
972	American elm	*Ulmus*	*americana*	41	3	X	X			X
973	cedar elm	*Ulmus*	*crassifolia*	41	3					X
974	Siberian elm	*Ulmus*	*pumila*	41	3	X				X
975	slippery elm	*Ulmus*	*rubra*	41	3	X	X			X
976	September elm	*Ulmus*	*serotina*	41	3					X
977	rock elm	*Ulmus*	*thomasii*	42	4	X	X			X
981	California-laurel	*Umbellularia*	*californica*	43	4			X		
989	mangrove	*Rhizophora*	*mangle*	43	4					
990	tesota, Arizona-ironwood	*Olneya*	*tesota*	43East,48West	4			X	R	
991	saltcedar	*Tamarix*	*spp.*	41East,47West	3					

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(Appendix F continued)

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
992	melaleuca	*Melaleuca*	*quinquenervia*	41East,47West	3					X
993	chinaberry	*Melia*	*azedarach*	43	4					X
994	Chinese tallowtree	*Sapium*	*sebiferum*	43	4					X
995	tung-oil-tree	*Aleurites*	*fordii*	43	4					X
996	smoketree	*Cotinus*	*obovatus*	43	4	X				X
997	Russian-olive	*Elaeagnus*	*angustifolia*	43	3	X				
999	other, unknown	*UNKNOWN*	*UNKNOWN*	43East,47West	3	X	X	X	X	X

TREE SPECIES GROUP CODES

Species Group Name	Code
Softwood species groups	
Eastern softwood species groups	
Longleaf and slash pines	1
Loblolly and shortleaf pines	2
Other yellow pines	3
Eastern white and red pines	4
Jack pine	5
Spruce and balsam fir	6
Eastern hemlock	7
Cypress	8
Other eastern softwoods	9
Western softwood species groups	
Douglas-fir	10
Ponderosa and Jeffrey pines	11
True fir	12
Western hemlock	13
Sugar pine	14
Western white pine	15
Redwood	16
Sitka spruce	17
Engelmann and other spruces	18
Western larch	19
Incense-cedar	20
Lodgepole pine	21
Western redcedar	22
Western woodland softwoods	23
Other western softwoods	24
Hardwood species groups	
Eastern hardwood species groups	
Select white oaks	25
Select red oaks	26
Other white oaks	27
Other red oaks	28
Hickory	29
Yellow birch	30
Hard maple	31

Soft maple 32
Beech 33
Sweetgum 34
Tupelo and blackgum 35
Ash 36
Cottonwood and aspen 37
Basswood 38
Yellow-poplar 39
Black walnut 40
Other eastern soft hardwoods 41
Other eastern hard hardwoods 42
Eastern noncommercial hardwoods 43
Western hardwood species groups
Cottonwood and aspen 44
Red alder 45
Oak 46
Other western hardwoods 47
Western woodland hardwoods 48

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2001. **The forest inventory and analysis database: database description and users manual version 1.0**. Gen. Tech. Rep. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 130 p.

Describes the structure of the Forest Inventory and Analysis Database (FIADB) and provides information on generating estimates of forest statistics from these data. The FIADB structure provides a consistent framework for storing forest inventory data across all ownerships across the entire United States. These data are available to the public.

KEY WORDS: Plot measurements, inventory methods, data processing, data management, information management systems.

Our job at the North Central Research Station is discovering and creating new knowledge and technology in the field of natural resources and conveying this information to the people who can use it. As a new generation of forests emerges in our region, managers are confronted with two unique challenges: (1) Dealing with the great diversity in composition, quality, and ownership of the forests, and (2) Reconciling the conflicting demands of the people who use them. Helping the forest manager meet these challenges while protecting the environment is what research at North Central is all about.